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ABSTRACT

This document presents a collection of specific ideas addressing 24 teaching practices appropriate for developing Personal Teaching Improvement Guides, an individualized approach to improving teaching in colleges and universities. The ideas came from teachers at the University of California (Berkeley) whose teaching was highly rated by students. The Personal Teaching Improvement Guides are compiled to reflect those specific areas in which student ratings indicate a teacher is weak. Specific teaching practices covered include: discussing points of view other than your own; discussing recent developments in the field; emphasizing conceptual understanding; explaining clearly; being well prepared; giving lectures that are easy to outline; summarizing major points; stating objectives for each class session; identifying what you consider important; encouraging class discussion; inviting students to share their knowledge and experiences; knowing if the class is understanding you or not; having students apply concepts to demonstrate understanding; showing genuine interest in students; giving personal help to students having difficulties; relating to students as individuals; being accessible to students out of class; and keeping students informed of their progress. (DB)

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The Library of Teaching Improvement Packets (TIPs) for Preparing Personal Teaching Improvement Guides: 24 Item Edition

Barbara G. Davis, Lynn Wood & Robert C. Wilson
Teaching Innovation and Evaluation Services (TIES)
University of California, Berkeley
1986

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The Library of Teaching Improvement Packets (TIPs)*

for Preparing Personal Teaching Guides

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*The ideas on the following pages were obtained by interviewing outstanding teachers at Berkeley about what they do that they think makes their teaching highly rated by students.

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The Library of Teaching Improvement Packets (TIPs)

for Preparing Personal Teaching Improvement Guides

Where the Ideas Came From

We are all indebted to those excellent teachers at Berkeley from whom the ideas described on the following pages were obtained. Faculty permitted us to administer the Student Description of Teaching questionnaire in their classes. They also agreed to be interviewed about their teaching practices related to the six to eight statements that students rated as most descriptive of their teaching. Faculty were asked, "Can you think of anything you do that would lead students to say that it is very descriptive of your teaching that you: (the item was inserted here, e.g. explain clearly; know if the class is understanding; encourage class discussion)? The majority of the interviews were conducted by Davis and Wood. The first editing was done by Davis. The final editing was done by Wilson.

Why the Teaching Improvement Packet (TIP) Format?

The Teaching Improvement Packets (TIPs) are brief and therefore don't take much time for faculty to read; they describe teaching practices that have been shown to be successful; they provide faculty with a range of alternatives from which to chose; and they are keyed to individual questionnaire items.

In a recent study of teaching idea use, TIPs had a batting average of .360 that is 9 out of 25 faculty who received Personal Teaching Improvement Guides made substantial use of them. In contrast, teaching ideas given to faculty in book form had a batting average of only .100. That is only 2 out of 21 faculty made substantial use of them.

The Teaching Improvement Packets (TIPs) were developed as one device for increasing the likelihood that faculty will find and actually use successful ideas to improve their teaching. The TIPs are substantive and specific; they are concrete; they are easy to apply.

Teaching Innovation and
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Teaching Improvement Packets

No. 1

DISCUSSING POINTS OF VIEW OTHER THAN YOUR OWN

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. Assign multiple readings to represent a variety of viewpoints.

   "Because the most controversial issues covered in a course are ones on which my students have strong opinions but little information, I try to expose them to diametrically opposite positions or theories," says one professor of Political Science.

   "Developing a set of readings takes time. However, I can usually use it for two or three years with only minor modifications.

   "If I can't find an adequate reading for some point of view, I present it in a lecture. The main parts are summarized in a handout for my students."

2. Assign readings directed toward revealing the reasons behind differing points of view.

   A professor of Business Administration says, "I use a semi-Socratic technique to lead my students through an analysis and critique of each theorist's position." The focus is not on opinions but on the reasons behind them. "Sometimes my own view is apparent either explicitly or implicitly; other times it is not."

   "Sometimes it is not possible to find a reading which gets at the basis for a particular point of view. However, any reading that presents a clear statement of the features of the theory is useful. Students can be directed to a lively discussion of reasons that are tenable. It gives them experience in learning the criteria of a good argument."

3. **Select a textbook which represents one theoretical viewpoint and build your lectures around an opposing set of ideas.**

A professor of Economics, for example, assigns a textbook that represents the point of view of liberal economists, but designs his lecture presentations around the opposing views of leading conservatives or radicals.

In addition to assuring a balanced presentation, this approach adds variety and interest to the course and stimulates students to think critically. Because the lecture material complements rather than repeats the textbook, it has the added benefit of increasing attendance at lecture.

4. **Present each of several competing theories as if you were an adherent of that position.**

A professor of Psychology introduces three major approaches or schools of thought in the field. "I discuss each one historically and contrast the basic elements and implications of each," he says.

"I really don't have a point of view in this course. There is so little known with impartial certainty; I don't think one is justified in taking a position at this time. Therefore, I present the best case for each theory, then analyze each critically and comparatively."

Even though they do have a distinct point of view, several other excellent teachers report that they also present the best case for each of several competing theories before they reveal their own preferences.

5. **Invite guest speakers whose viewpoints differ from your own.**

A professor of Education makes a point of doing this in his courses so that his students are exposed to a variety of positions. "I want them to understand what the different points of view are," he says, "and one of the best ways I have found to do that is to invite a colleague or practitioner whom I know to be an adherent of each view to make a presentation to the class."

"I always take detailed notes during a guest lecture," says a professor in the biological sciences. "In this way I am able to answer student questions about the material during later sessions and may learn something new myself!"

6. **Use your students' opinions to create a microcosm of society's attitudes on social, political, and economic issues.**

At the beginning of the term, a professor of Economics gives his students a questionnaire in which they are asked to agree or disagree with a series of controversial statements on the functioning of the economy. "Because the introductory course is so large (over 800 students), it is impossible to invite discussion even though many students enter the course with strong views about such matters as the causes and cures of inflation," he explains.

"As a substitute for discussion, I use the survey results to introduce a variety of student viewpoints. Throughout the semester I reveal selected results from the survey as these relate to new concepts or issues covered in readings and lectures.

This technique gives my students a sense of personal involvement in the subject matter. Students learn that some of their peers may share their viewpoint. They also learn that some of their peers don't share their viewpoint and why. Use of student data allows me to introduce most of the views currently reflected in the society as a whole."

7. **Draw upon the diverse backgrounds and experiences of your students to introduce different points of view.**

At the beginning of the term, a professor of Business Administration asks his students to give written answers to questions about their backgrounds and reasons for taking the course. He asks students to focus particularly on experiences which might give them a particular viewpoint on social, political, and economic issues to be covered in the course.

Using a seating chart he calls on students whose prior experiences or interests may be relevant to a topic under discussion. In this way a full range of views is introduced in the course. "Often, with little or no effort, I am able to get students debating between themselves. In fact, I rarely give my own point of view until there has been a full discussion of the different points of view within the class itself."

This technique has additional advantages: introducing personal experiences and opinions makes the class livelier; and the instructor is given a method for learning some of the students' names by attaching students to their backgrounds, experiences and personalities.

8. **Encourage students to take an approach different from the one you have adopted.**

A professor of English uses this strategy in all of his literature courses. "I always approach literature from an historical point of view: history is a particular passion with me," he says. "At the same time, I point out that there are many other perspectives and encourage students to use alternative approaches, e.g., the psychoanalytic approach or that of the new literary criticism."

9. **Point out explicitly that there are alternative points of view.**

One Political Science professor says that he frequently reminds students that they should question whatever he tells them.

"I indicate the polar principles which guide much of the research in the social sciences as well as much of our folk wisdom, e.g. 'opposites attract' versus ' birds of a feather flock together' or 'absence makes the heart grow fonder' versus 'familiarity breeds contempt.' In doing so I point out that they should be mindful that there may be good reasons to believe the opposite of what I say; that they should analyze all arguments in terms of their opposites."

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 1, 1986 form.

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DISCUSSING RECENT DEVELOPMENT IN THE FIELD

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. Telephone colleagues who are conducting state-of-the-art research on key course topics to get the latest information.

   Before giving her lecture on the heart, a Physiology professor calls researchers at Stanford and UCSF to get the most recent statistics and findings on heart transplants. Similarly, a Law professor directly contacts attorneys involved in important cases pending or under adjudication, making her lectures even more up-to-date than the Advance Sheets which give the first printed results of court decisions.

   A professor in Geography routinely calls his contacts in Washington to get the latest information on environmental legislation which he incorporates into his lectures.

   This kind of up-to-the-minute reporting on a few major developments relevant to course content can help you convey a sense of the excitement of research to your students.

2. Share your professional "junk mail" with your students.

   In his graduate courses, a professor of Education makes a point of passing around program announcements for local conferences, program proceedings, and advertisements for new books and journals in the field. "In this way I inform my students about professional activities and recent developments of which they might not otherwise be aware," he says.

   "I also encourage my students to attend professional meetings and conferences and to request papers on topics of interest to them. It's simply another way to socialize them to the profession."

   A faculty member teaching introductory French also shares copies of newsletters, newspaper clippings, and announcements of French movies, plays, or other cultural events in the Bay Area. "My students are often amazed and delighted to learn that there are so many opportunities to strengthen their language skills and to expand their understanding and enjoyment of French culture," he explains.

3. Require your students to read current journal articles.

"It's important for my students to be exposed to state-of-the-art ideas even in a lower division course," says one Political Science professor. "I try to make sure that my reading list contains at least a few recent journal articles."

"In some ways I find it easier to introduce recent developments in the field to lower division students than to graduate students," says a faculty member in the biological sciences. "I do this by over-generalizing. I translate the abstract of a journal article into layman terms. I present the basic findings in a narrative fashion, using little actual data.

"I want my students to become excited by the open-ended nature of science. I want them to understand that what they are learning is not the final word.

4. Require your students to read current newspapers or periodicals.

A professor of Economics assigns the Tuesday editorials of the Wall Street Journal each week. She uses them as a basis for discussions and for exam questions, she has her students compare them with textbook presentations on related topics.

A teacher in the biological sciences also believes strongly in making use of articles in current periodicals. "I keep my eyes open for stories on recent developments which have become part of the 'current events' literature," he says. "For example, in a discussion of recombinant DNA, I was able to use photos from a recent issue of Life Magazine, as well as a story the Wall Street Journal did on the Genetech Corporation."

5. Tell your students about local events which will expand their understanding of your subject.

"Every Monday I distribute a calendar announcing course-related events not only on the campus but in the Bay Area," one social science faculty member explains. "The events include dance troupes, plays, lectures, demonstrations, poetry readings and so forth. In this way the content of my course is expanded far beyond what I can actually cover in class. I also encourage my students to use these local resources in their research and writing assignments."

These are all the ideas that we obtained in our interviews with Berkeley faculty. If you have additional ideas that could be included in this Teaching Idea Packet, please call Robert Wilson at 642-6392. Payment will be made for each idea used.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983.
These suggestions relate to Student Description of Teaching Item 2, 1986 form.

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No. 3

EMPHASIZING CONCEPTUAL UNDERSTANDING

These ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Give your students a conceptual framework on which to hang major ideas and the factual information of a course.**

   The framework may be a structure, a theme, a conceptual typology, a controversial issue, or a theory. It should be made salient to your students through repeated reference.

   As one professor of Physiology points out, "To the uninitiated, our field looks like a mass of facts; by establishing a conceptual framework, I minimize the amount of rote memorization my students have to do."

   Often the framework can be represented symbolically or graphically. Another physiologist, for example, begins each lecture by drawing the same outline of the whole human brain on the blackboard. Details of the brain, in terms of structures and processes, change according to the specific topics to be covered in that day's lecture.

   A Sociology professor uses a basic typology as a conceptual framework for his course; this typology is sketched on the blackboard each day as a matrix into which new information is written. He stresses the need to tie basic facts together, to make the conceptual linkages for his students.

   A History professor uses the concept "Attitudes toward Natural Resources" rather than chronology as an organizing principle. A professor of Spanish literature identifies two or three major concepts (e.g., irony or tragedy) and applies them repeatedly in lecture, discussion and assignments to reinforce student understanding.

2. **Pose paradoxes for your students to solve.**

A Chemistry professor emphasizes conceptual understanding by challenging his students with apparent paradoxes. "Several times each semester," he says, "I set up a demonstration to give a visual result that is at variance with what is described in the textbook. My students are then helped to explain the paradox by applying a variety of problem solving techniques."

"This kind of demonstration really gets my students thinking," he says. "Furthermore, many of my students tell me that they learn more from seeing than from reading. It gives them another way of understanding and helps them gain self-confidence that they do in fact understand."

3. **Divide your course into levels of conceptual difficulty.**

A Zoology professor focuses the first part of his course on fundamentals and the second part on state-of-the-art research.

"The first six weeks cover basic concepts and fundamental processes <u>all</u> my students must learn about the subject," he says. "In this segment I eliminate many 'nice to know' concepts in favor of going over the basics in a very thorough way.

"Because my students are quite heterogeneous (including undergraduates who have taken only introductory Biology as well as graduate students in Zoology), I spend the first six weeks making certain that everyone is brought up to approximately the same level of understanding of the fundamentals. Then in the last weeks of the course, I introduce the latest research experiments in the field. In effect, the first half of the course is made up of 'little white lies,' that is, the simplified constructs of the field. In the latter weeks, the emphasis is on how research is actually done and how little we really know."

A professor of Physics uses a similar strategy throughout his lower-division courses. He divides course topics into three levels: those which are "Basic" (i.e., should be mastered by every student); those which are "Recommended" (i.e., should be mastered by every student seeking a good competence in the subject); and those which are "Optional" (i.e., need to be mastered by those students with special interest in the subject).

4. **Stress the most enduring values or truths in your discipline.**

"I stress the permanent values in literature, the emotional responses that a particular novel or collection of novels elicits from us all," says one professor of English. "I try to get my students to understand why they respond to a given novel the way they do."

After a class has discussed how they feel about a novel--the commmon emotions it arouses--he tries to lead them to analyze, understand, and explain why nearly everyone feels the way they do. He poses questions such as: What must literature be like in order to get us to respond the way we do? Why does a particular novel affect everyone in the same way? "Behind all my questions is the search for a way of analyzing and discussing literature that will explain the most with the fewest assumptions."

5. **Touch base repeatedly with the fundamentals or basics.**

One Engineering professor believes that too much of science and engineering is presented to students in a rote, plug-in-the-numbers way.

"There are thousands of formulae," he points out, "but all of these are variations on a limited number of basic ideas or theories." "These basic ideas are '<u>ideal</u> theories' from which are derived all the '<u>approximate</u>' or '<u>technical</u> <u>theories</u>' which engineers use."

"I try to teach my students how to judge when they can use an approximate theory with confidence and when they are obliged to go to a more rigorous level. In this way, I keep touching base with the fundamentals to reinforce students' understanding of them."

Another Engineering teacher concurs. "Students typically are presented with 100 different equations in each course they take. They are exposed to 1100-1200 equations overall. Rote memorization is futile; no one can remember that many equations. You have to point out over and over again that these 1200 equations are all embedded in about 8 basic ones."

6. **Model processes of deductive or inductive reasoning by which an explanation becomes apparent.**

A professor of English says, "nearly all of my lectures follow a logic and discovery procedure." That is, 'Let's make assumption A and then see if B follows from that.'

"My lectures take the form of unraveling this process, with questions posed to my students to check the validity of the analysis," he says.

A professor of Architecture says that because he has an abiding interest in questions of cause and effect, his lectures tend to take the form of "What would happen if..." Problem-solving approaches are characteristic of many excellent teachers.

An Engineering teacher, for example, begins his lectures by posing a problem which he proceeds to work out on the blackboard, labeling each step and explaining his reasoning to the class as he works. "I try to model a style of analytic thinking which I hope my students will emulate," he explains.

7. **Focus your course on the classic issues and concepts in your discipline.**

A History professor explains that she has moved away from presenting the most esoteric and up-to-date concerns of professional historians in her undergraduate courses.

"The most interesting issues and themes for undergraduates," she explains, "generally turn out to be those which originally excited historians about a particular person, event, or epoch, not the historiographical controversies of present-day historians. The classic issues are the ones which attracted me to the field," she says, "and I find that they are still the most exciting for my students."

Following this approach does not mean that you cannot introduce new research findings where they are relevant, of course. Nor does this suggest that ideas which have little or no current validity should be taught. It does mean that, in limiting your coverage, you select the major classic themes and concepts wherever possible.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983.
These suggestions relate to Student Description of Teaching Item 3, 1986 form.

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Teaching Improvement Packets

No. 4

EXPLAINING CLEARLY

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. Empathize with the students' difficulties in learning the material for the first time.

A faculty member in the sciences says that he noticed that he had taught the course better the first time than he did the second time. "When I asked myself why, I realized that in preparing the course for the first time, I really had to work hard to master certain parts of the material in order to explain it to my students. The next time, however, these concepts no longer seemed difficult to me. Unfortunately, I forgot that they would still be difficult for the students. Now I color-code all of my lecture notes, keying the parts that students are likely to find difficult and making a special effort to make those points very clear."

A Physics professor also tries to put himself in the students' shoes. "After I have finished writing up a set of lecture notes," he says, "I review them carefully, asking myself: 'What might my students find hard to follow in that line of reasoning?' 'What examples might make that more clear?' This has now become the most important part of my lecture preparation."

Several faculty members report making notes to themselves of explanations that worked well and those that didn't. They also keep records of the kinds of errors students most commonly make in assignments and exams as a reminder of what students find most difficult to understand.

2. **Define carefully all concepts and terms.**

A faculty member in the biological sciences points out that you cannot assume that students know or remember concepts and terms from previous courses. "If I use a word for the first time, I write it on the board and define it. I do this even if it is a concept or term that students have presumably learned in introductory biology and chemistry courses."

Another faculty member underscores the importance of giving students a clear definition of terms. "If the term is not defined or is poorly defined in their textbook, I point that out and then give them the clearest definition I have been able to find." He frequently looks at three or four introductory texts to find the clearest definition of a term, especially if it is either not defined or not defined well in the textbook used in the course.

3. **Focus your lectures on a few main points and omit unnecessary exceptions, complexities, or details.**

"The key to explaining clearly," says one Economics professor, "is to limit the amount of material covered in a single lecture. The critical error made by many faculty members is trying to include too much by a factor of six."

"I generally focus on three main points and repeat these in various ways throughout my lecture. Beginning undergraduates do not need to be exposed to the intricacies and complexities of a discipline; indeed, introducing them to these will only confuse them. Introductory courses are best taught by focusing on the fundamentals, using generalizations, and avoiding too many exceptions to the rule."

A History professor concurs. "I tell undergraduates, 'Here is what I think you can say is true, despite all the past and current debates of historians.' I don't go into those debates because they are complex and undergraduates are not sophisticated enough about historiography to appreciate them."

4. **Rephrase explanations of major points several times.**

"Repetition leads to learning," one science professor says. "I repeat major points several times from a different direction or in different words."

"No single explanation will be clear to all students," points out a professor of Business Administration. "By using different language or different examples, I maximize the chances that every student will eventually understand."

A Political Science professor also consciously alters the words he uses. "I have a tendency to say things twice," he says, "first, formally, and then colloquially."

An Engineering professor reports that he develops the same point in two or three different modes, e. g., mathematically, verbally, and graphically.

5. **Use lots of <u>concrete</u> or <u>memorable</u> examples.**

Most excellent teachers agree that the choice of examples is very important, favoring those that are anecdotal, personal, or humorous because they find that students tend to remember these best. "I use concrete examples wherever possible," says an Anatomy professor. "For instance, I describe a particular body organ by comparing its size or texture to an object familiar to students, like a walnut."

An Economics professor also places importance on using concrete examples of interest to students. "I use specific examples whenever I can. In talking about inflation and price controls I'll use the Prince tennis rackets or Sony Walkmans rather than apples or a general product."

A Forestry profesor uses the same strategy. "In talking about acre-feet of water, first I define it formally and then I give several examples which will help them appreciate the amount of water represented, such as 'equivalent to 77,000,000 ice cubes.' Students tend to remember examples like that," he explains.

6. **Acknowledge the difficulty of concepts students are likely to find hard to understand.**

One Engineering teacher says, "I consciously cue students to the most difficult ideas by saying such things as, 'Almost everyone has difficulty with this one, so listen closely.'" Because the level of students' attention varies throughout the hour, it is important to get everyone listening carefully before introducing a new concept or explaining a difficult point.

A Forestry professor agrees. "I make a special effort to slow down and get everyone's attention when I come to a concept I know students will find difficult."

7. **Demonstrate a concept rather than simply describing it.**

Whenever possible, try to avoid talking about something in its absence," one teacher says.

"For example, don't tell students how to present a logical argument; present a logical argument and help them to analyze it.

Don't describe how to solve a problem; demonstrate how to solve it on the blackboard; and label and describe the steps and your reasons for them as you go."

Demonstrations are superior to discussions because they make use of additional senses. Taking examples from everyday experiences, even if they cannot be demonstrated in class, will help students to visualize or re-experience them and reinforce their learning.

Use visual imagery whenever possible. Even if a live demonstration or the use of visual aids is not practical, the use of metaphors and analogies that give students a mental image to draw upon can help reinforce their understanding and recall. For example, a Physics professor helps students "get ready" for a discussion of velocity by asking them, "Have you ever seen a quarterback throw the football into the wind? Have you ever thrown a ball into the wind yourself? What happens?"

Teachers can often make use of slides, maps, tape recordings, live or filmed dramatizations, charts, diagrams, demonstrations, and actual cultural artifacts to illustrate the subject matter.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983.
These suggestions relate to Student Description of Teaching Item 4, 1986 form.

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Teaching Improvement Packets

No. 5

BEING WELL PREPARED

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. Prepare a detailed course syllabus.

"My syllabus usually runs about 15 pages," says a professor of Education. "It is organized by class session and each section consists of a major topic, four to eight important study questions or issues my students are expected to understand or be prepared to discuss. Required reading and recommended supplemental readings are included.

The syllabus also describes assignments, grading procedures, and competencies my students are expected to have (i. e., things they are expected to be able to do) by the end of the course."

In addition to his own detailed syllabus, a professor of Forestry also prepares what he calls a "quasi-syllabus" for his students.

"My students' syllabus (sold to them at cost) includes a course outline and a complete set of graphs, charts, and biological drawings which I show on slides during lectures. In this way, my students can study and review supplementary materials outside of class in conjunction with the text and notes taken during lecture."

2. Keeping a journal.

One History professor has found it very effective to keep a brief journal or diary for each course. "After each lecture, I jot down a few notes about how the class went: explanations and examples that worked well and those that didn't, students difficulties with the text, techniques for generating discussions, and so forth. If something went very badly, I correct it at the next meeting. For the most part, however, I keep the journal to help me improve the course next time."

Although a journal of this type could be beneficial to any teacher, its value is greatest for new instructors or for faculty members teaching a new course or a course they teach only every few years.

3. **Rework completely your lecture notes each time you teach a course, particularly if you are in a rapidly changing field.**

"It's important to completely redo my notes each time I teach the course," says an Economics professor. "It helps me rethink the material so that the ideas seem fresh and new to me as well as to my students. This increases my enthusiasm for the subject matter and I think this is communicated to my students."

"My lectures change somewhat every time I teach the course," says a professor of Psychology. "In this way, over a period of six to eight years, they change quite radically. This is partly because the field is changing, but it is also because my own ideas continue to develop."

Although the myth of the profesor who teaches with yellowed and musty notes is almost unheard of in a major university, today the importance of re-creating lecture notes each time a course is taught -- even if back-to-back within the same year -- was stressed by nearly all excellent teachers as a way of keeping themselves fresh and interested as well as interesting to their students.

4. **Prepare handouts of the lecture outline and any detailed formulae, derivations, or illustrations to be presented in class.**

"My handouts include the essential points of my lecture, including definitions, notations, important formulae and derivations," says one professor of Business Administration. "Students could not cut class and rely solely on the notes, however, because they are not self-explanatory. They are designed to help students follow the main structure of my lecture and to keep them from getting bogged down in copying details."

Several excellent teachers report that they make judicious use of handouts covering the most important, detailed, or complex topics covered in their lectures.

Not everyone favors handouts, however. "Analytic material can't be learned by watching and reading alone," says one Engineering professor. "It must be learned by doing, by writing it out." He prefers to put important material on the blackboard, discussing the steps and labeling them as he lectures to help students in their note-taking.

5. **Reread the texts assigned to students.**

Teachers in several disciplines report that a major part of their preparation is rereading the texts assigned to students. "I reread the text assignment over the weekend not only to ensure that it is fresh in my mind," says one History professor, "but also so I can acknowledge the parts I found dull, unclear, or especially important."

An English professor says, "No matter how well I think I know the literary texts assigned, I reread them very carefully so that they are vivid in my mind."

An Anatomy profesor reports that he rereads the text just after he finishes his lecture notes. "I always check my lecture notes against the text a final time," he says, "to be sure that I am complementing rather than repeating the text and to note any disagreements I have with its author."

6. **Audit the same or related courses taught by colleagues.**

One faculty member of Computer Science reports that he makes it a habit to audit other faculty members' courses.

"Particularly if I know I am scheduled to teach a course for the first time. I make a point of taking the course from the best instructor available. I attend all of the class sessions and usually do most of the homework. I find this a much easier way to do some advanced preparation than sitting down and reading several textbooks. It forces me to do some preparation each week."

"Taking the course from a colleague not only provides a good review of content, but I often pick up two or three good teaching techniques as well. Later, I do additional research and design the course my own way, but I have the great advantage of building on a model created by a colleague."

7. **Teach the same course the next semester.**

One Chemistry professor frequently teaches the same course "back to back" in two consecutive terms. "This way I can maximize my learning from mistakes I have made."

"I make notes to myself about what went well in the course and what didn't as it goes along," he says. "For example, I might make a note saying 'Don't forget to emphasize this point before that point.' Executing these suggestions to myself the very next semester reinforces my own learning."

8. **Use an abbreviated set of lecture notes.**

Many excellent teachers describe a two-stage process in the preparation of their lecture notes. A History professor, for example, says "First, I write out a detailed set of lecture notes over the weekend or the night before class. Then, on the morning before class, I take about an hour and a half to reduce these notes to a brief outline on index cards."

"Students like structure," he explains. "But they do not like terribly formal lectures delivered verbatim. Once I have worked out fully what I want to say, I communicate it more forcefully and more informally from a small number of index cards."

9. **Review the relevant sections of several textbooks for each lecture topic.**

A faculty member teaching a lower division course in the biological sciences says that in preparing each lecture he starts by comparing three or four introductory texts. He then looks at one or two specialized books on the given concept or biological process.

"There is no such thing as the perfect textbook; each has its strengths and weaknesses. By comparing several approaches, I am able to distill the best definitions, explanations and examples and am less likely to overlook important aspects of the topic. It also helps me to complement the textbook rather than repeat it in lecture. I also include simplified accounts of recent developments in the field taken from my own professional reading whenever it is appropriate."

10. **Keep a set of cumulative notes for each course topic.**

Most teachers keep a chronological set of lecture notes from the first to the most recent time they have taught a course. Many teachers keep separate notes for each lecture topic. "To these I add research articles, newspaper clippings, cartoons, ideas for assignments or exam questions and notes to myself for improving the lecture or discussion," reports a professor of English.

By keeping separate topic files and inserting new materials and notes of new ideas throughout the year, it becomes much easier to prepare a new set of lecture notes with improved or more up-to-date examples, assignments, or explanations the next time you teach.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 5, 1986 form.

Teaching Innovation and
Evaluation Services (TIES)
U. C. Berkeley

Teaching Improvement Packets

No. 6

GIVING LECTURES THAT ARE EASY TO OUTLINE

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. Structure a lecture as you would a journal article.

   "Each lecture should have a clearly defined beginning, middle, and end," a profesor of History notes. A faculty member in Computer Science concurs, saying that he prepares his lectures so that they have the oral equivalents of an introduction, headings, subheadings, summary, and conclusion.

   "Orally highlighting the structure of a lecture serves the same communication functions as using paragraphs and different type faces in a journal article," he says. "It tells the audience what the topic is, why it is important, what its chief components and their relationships are, and what conclusions we can draw.

   "I firmly believe in sharing the structure and reasoning of my lectures with the students," he explains. "I begin each lecture by stating my objectives. For example, 'Today we are going to discuss X and its effects on Y and Z.' I make frequent transitional phrases, and I leave time to summarize the major points at the end of the hour."

2. Write an outline for your lecture on the blackboard before you begin.

   One professor of Physiology says that he picked this up from a colleague when they were team-teaching several years ago. "I put the outline of my lecture in a corner of the blackboard when I first come into class," he says. "That way students can tell at a glance when I've shifted topics and where we are in the day's discussion. I also make frequent reference to the outline to alert students to transitions and the relationships between topics."

3. **Use "closed lists" whenever possible in your lectures.**

A Political Science teacher says he makes frequent use of closed lists. "I make a habit of saying things like, 'There are three main implications of X, number one is...' or 'Remember in the last lecture, we were discussing the six principal steps that an administrator goes through when...; these are Number one..., etc."

"Closed lists are marvelous," he says. "They are fictional constructs, of course, and this needs to be pointed out to the students. Nevertheless, they provide a good advanced organizer for students. Closed lists help them both to listen for major points and to take notes. They also provide a very natural bridge or transition mechanism for letting students know when you are changing from one topic to another. Finally, I find that closed lists provide a good structure for summarizing, because they help differentiate between the main points and the detailed examples or digressions."

4. **Schedule a break if your class exceeds one hour.**

After an hour, it is difficult for students to concentrate and take notes steadily; their efficiency drops. Many teachers provide a break after 50 minutes or so to give students a chance to regain their concentration.

A Physics teacher always takes a short break in his 1 1/2 hour class. "I have students stretch at their seats to wake them up and get their blood circulating." A faculty member in the biological sciences has students take a "t'ai chi" break, leading them through exercises.

5. **Give students a list of questions which cover topics to be addressed in your lecture.**

One History professor does this routinely. "By outlining my lecture as a series of questions," she explaines, "I hope to stimulate students to think actively during the presentation. The questions are designed to give them a conceptual framework and guide so they can identify where we are and where we are going in the overall discussion.

"I realize that it is difficult for students to listen attentively for a full hour," she says. "Providing them with an outline of the lecture in question format allows them to pick up the thread of the discussion more quickly as their attention fades in and out."

6. **Organize your lectures into 10 minute segments.**

A faculty member who reports doing this says that he learned the trick from an article in Science written by Nobel Laureate, Sir Lawrence Bragg.

In the original article, Bragg says, "Some try to get the timing of a lecture right by, as they say, 'running over it beforehand' and seeing how long it takes... . I prefer to divide it into some half dozen portions, and allocate about 10 minutes to each, marking this timing in the margin of my rough notes... ."

"The advantage of dividing the time up in this way is that the pace can be adjusted during the lecture when it is clear that it is going to be too long or (rarely) too short. If time is running long, the part to shorten is the middle where it will be little noticed. The beginning or the end must not be hurried... ." ("The Art of Talking about Science," Science, Vol. 154, December, 1966).

7. **Outline your lecture on the blackboard as it develops.**

One professor in the biological sciences says that she always outlines her lectures on the board as she goes along, using colored chalk to differentiate major and subordinate heads or points and to diagram relationships. On a separate section of the blackboard she also writes down technical terms or names of scientists that her students might not know how to spell.

"The outline serves to reinforce visually what I am saying," she explains. "Furthermore, it makes clear to everyone where we have been and where we are going. An added bonus is that writing the outline on the board as I go along slows down my lecture pace; it serves as an automatic 'brake' and keeps me from racing through the material."

"I prefer to use the board as I go along," an Engineering professor says. "I think this emphasizes the importance of major ideas better because they are revealed in the context of the discussion."

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983.
These suggestions relate to Student Description of Teaching item 6, 1986 form.

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Teaching Innovation and
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U. C. Berkeley

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No. 7

SUMMARIZING MAJOR POINTS

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Begin and end your lectures or discussions with a summary statement.**

   A History professor finds it helpful to place his watch in full view on the desk of lectern. "I watch the clock carefully to be sure that there is time to summarize the day's discussion. Then, at the beginning of the next class session, I sum up the previous lecture once more before moving on to a new topic."

   "Students crave both continuity and a sense of closure," he explains. "They do not like unfinished presentations. At the same time, because none of us likes repetition, I try hard to use different words and examples in each summary. The best way I have found to avoid redundancy is to note on an index card the exact words I have used at the end of a lecture, so that I am reminded to vary them in the brief recapitulation I give at the beginning of the next class meeting."

   A professor of Business Administration also uses this technique. "Because each concept in this course builds upon what has gone before, it is important for students to see how each new topic relates to what they have already learned as well as to what they will be learning in the coming weeks. I find the most effective way of doing this is to begin with a brief summary of what came before, followed by a brief preview of what will come next."

2. **Begin each class period with a brief summary of the main points covered in the last meeting and then call for students' questions.**

   The advantage of summarizing and asking questions at the beginning of a class period is that, "students are fresher and after a brief recapitulation, they are more likely to realize and acknowledge if they have any problems," as one teacher puts it. A variation on this technique is to summarize and call for questions whenever there is a major transition from one topic to another within the same lecture.

3. Use the blackboards to help you summarize.

Several excellent teachers stressed that they plan their blackboard work carefully so that the most important concepts are still visible at the end of the hour and can be used in making a summary.

"I consciously attempt to write clearly and legibly and to be sure that my boardwork is organized and visible to everyone," one Engineering professor says. "At the end of the class, I use this boardwork to go back over important theorems or equations, underlining and boxing in with colored chalk important concepts and steps."

These are all the ideas that we obtained in our interviews with Berkeley faculty. If you have additional ideas that could be included in this Teaching Idea Packet, please call Robert Wilson at 642-6392.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 7, 1986 form.

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Teaching Innovation and
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Teaching Improvement Packets

No. 8

STATING OBJECTIVES FOR EACH CLASS SESSION

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Begin each lecture by letting your students know what you are going to talk about and why.**

   An Engineering professor refers to this as his "battle plan." "At the beginning of the hour, I give my students a battle plan so they know where the discussion is going and can follow it more easily," he says. "For example, I tell my students that I'm going to discuss such-and-such a topic for the first twenty minutes, show them how to use it in the next twenty minutes, and then take questions in the last ten minutes. By laying out exactly what I am going to do, I eliminate a lot of student confusion. I don't want students spending the hour wondering, 'Why is he talking about that?' or 'What does that have to do with anything?' instead of concentrating on what I have to say."

2. **Tell 'em what you're going to tell 'em; tell 'em; then tell 'em what you told 'em.**

   Although it may appear to be an over-simplification, many excellent teachers cite the old adage, "Tell 'em what you're going to tell 'em; tell 'em; then tell 'em what you told 'em." In the case of lectures on complex subjects, the general principle is a good one which can be adapted to major topics within a lecture as well as to the overall lecture itself.

3. **Include statements of class session objectives in your course syllabus.**

   Many faculty members state the objectives of their course in a syllabus. Some include projected topics for each class session and what they hope to accomplish in the session. Says a professor of Physics, "I like to lay out the course in some detail for my students. I even make projections of the topics and purposes of each class session. I have never yet stuck to the schedule, but laying it out organizes my thinking. I think it helps students feel more organized, too."

4. Write the objectives for a class on the board before you begin.

"A beginning statement of objectives or directions is one of the most important aspects of teaching. Students need to know where you are going so that they can understand where they are going."

A professor of History explains, "I come to class a few minutes early and write three to five objectives on the board. As class begins I present my objectives for that day for that class. During my presentation I make specific references to my objectives as I go along. This way students know what I'm thinking about while I'm talking. They also learn why I think certain points are important."

These are all the ideas that we obtained in our interviews with Berkeley faculty. If you have additional ideas that could be included in this Teaching Idea Packet, please call Robert Wilson at 642-6392.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 8, 1986 form.

7/86

IDENTIFYING WHAT YOU CONSIDER IMPORTANT

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Explicitly call attention to the most important ideas in each lecture.**

   "I began to emphasize the main points about ten years ago," says one Political Science professor, "when I discovered that you can't rely on undergraduates to intuitively know what the most important points are. You have to tell them."

   Faculty members in several disciplines stress the need to call students' attention to the most important ideas being presented. Some teachers announce the importance of an idea before presenting it, saying such things as "This is really important, so you have to be alert." Other teachers emphasize the most important ideas when summarizing, saying "The most important thing to remember here is..." or "This is so important that everyone of you should have it engraved on a gold plaque and hung over your bed!" as one professor of Computer Science puts it. "There is no point in my students having to guess what is important if I can tell them," he says.

2. **Indicate the relative importance of ideas presented in your lecture.**

   A professor of Political Science says, "I highlight major points by saying, 'This is more important than that.' For example, if I am giving a list of six contributing factors to some phenomenon or event, I deliberately identify which in my view are most important. I don't want students to go away thinking that everything I say is of equal weight or importance."

   A professor of Engineering also thinks it is important to differentiate between the most and least important ideas presented in lecture. Therefore, he tells his students, "You don't have to memorize everything, but you might want to remember this...." or "This, on the other hand, is something you will use so many times that it's worth paying special attention to." Used sparingly, he believes that these prefatory remarks help focus student learning on the most essential parts of the course.

3. **Explain or demonstrate to students why a particular point is important.**

Several teachers believe that the best way to cue their students to the importance of an idea is to show them the role that idea plays in an overall understanding of the course material or in applications beyond the course.

"I think it is crucial for students to know why a concept is important," says one Physiology professor. "Just saying that it is important is not enough. You need to put the concept in some perspective, to show why it is important. Explaining why an idea is important not only gets your students' attention, it gives them a framework on which to hang the idea."

An Engineering professor concurs. "I follow the introduction of a major concept with lots of specific examples, including anecdotes which show application of the concept in current professional practice," he explains. "You must show your students why it is important to know a particular concept if you expect them to master it."

4. **Use dramatic pauses and repetition to draw students' attention to the main ideas.**

Several teachers stress the need for repetition (using different language or examples) to communicate the most important points in their lectures.

Dramatic pauses are another way to highlight important ideas. A History professor says that she used to tell her students, "The main point is..." but in a matter-of-fact manner, almost as an aside. "I discovered that many of my students did not get the message," she explains. "Now I indicate a main point by pausing to get my students' full attention and then saying emphatically, 'This is the really important consideration!' Then I pause again to be sure they are prepared to write it down. If not, I restate the importance of what is to follow."

A Sociology professor also uses dramatic pauses and a sense of timing to stress the most important points in his lectures. "I structure each lecture to build up to the crucial point of the topic," he says. "Then I announce it in a sweeping manner, timed to occur at the end of the class period."

These are all the ideas that we obtained in our interviews with Berkeley faculty. If you have additional ideas that could be included in this Teaching Idea Packet, please call Robert Wilson at 642-6392.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson
Teaching Innovation and Evaluation Services, University of California, 1983.
These suggestions relate to Student Description of Teaching Item 9, 1986 form.

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Teaching Innovation and
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U. C. Berkeley

Teaching Improvement Packets

No. 10

ENCOURAGING CLASS DISCUSSION

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. Explain the purpose of discussion.

To get your students involved in class discussion, it is helpful to explain the value of their participation and what they can expect to get out of the experience.

A professor of Business Administration stresses the importance of explaining the benefits of discussion with students. "My students don't know how to participate in a seminar so I make a point of telling them what skills they will acquire: how to speak and discuss their ideas, how to listen and respond to the ideas of others."

In seminars, especially, many faculty members find that it is worthwhile taking some time to teach their students how to listen to others, how to paraphrase, how to involve other members of the group. "Students have to understand that in a seminar they share the responsibility for making the discussion a worthwhile experience for us all," says one social science teacher. "This is a new idea for most of them."

2. Move around the room in a way which will promote discussion.

A professor of Business Administration finds that the way he moves around the room alters the kinds of interaction he is able to generate among his students. "When a student asks a question, it is natural for an instructor to move toward that student," he points out. "However, this tends to exclude the other students and focuses the interaction on the teacher and the one participating student.

"In order to draw my other students into the discussion and to get them to address their comments to one another as well as to me, I find that it helps if I move away from the student who asks a question rather than toward him or her. This forces the student to project so that everyone is drawn into the conversation. It also makes it more likely that the student will address fellow students."

3. **Redirect your students' questions.**

Whenever you have reason to believe that there are students in your class who know the answer to a student's question, it is useful to redirect the question to one of those students or to the class as a whole. A professor in the social sciences, for example, says that in the discussion section he tries hard not to answer his students' questions directly unless he doubts that anyone in the class would be in a position to give the correct response.

"Even in lecture classes, I often use this technique," he says. "It tends to involve the other students more with the question and it illustrates how fellow students can be a resource for learning."

4. **Create an apropriate physical setting for the discussion.**

It is difficult for students to talk to people they cannot see. In a typical classroom, with fixed seats facing forward, students tend to direct their comments to the front of the room - to their teacher - rather that to other students. This arrangement encourages one-to-one dialogues rather than group discussion. If, on the other hand, students can see each other, they are more likely to interact with one another as well as with their teacher.

A circle or U-shaped arrangement of chairs is the most useful for discussion. Instructors also find that if they sit with their students rather than stand in front of them or sit behind a table, it helps promote group discussion rather than student-faculty exchanges.

5. **Identify discussion questions in advance.**

Students are more inclined to participate when they know the focus or intent of a discussion. A preview of discussion topics can help your students to organize their thinking and prepare to express their views. Several faculty members develop discussion questions in advance and distribute them to their students.

"In my Education course," one professor explains, "I give my students a series of four to eight discussion questions on each week's reading assignment. These are spelled out in my course syllabus which is handed out during the first week of class. All of my students are responsible for all of the questions each week. These questions serve both as study aids and stimuli for discussion."

6. **Turn one of your lecture periods into a discussion section.**

An Engineering professor teaches a lecture course with an enrollment of about 40 students. Because of its size, there is no Teaching Assistant for the class and no formally scheduled discussion section.

"I believe that discussion is quite important, but the current size of 40+ students really prohibits useful exchange in the lecture setting," he says. As a result, he decided to restructure one of the lecture meetings into two discussion sections.

On Mondays and Wednesdays, he lectures to the class. On Fridays, his students meet in two different sections (15-25 students in each group) to discuss the material. The faculty member conducts both discussion sections.

Although it may be difficult to schedule a convenient time for one of the sections (the other can meet during regular lecture hours), the benefits are worth the effort to this instructor.

7. **Divide the class into smaller groups with a formalized structure.**

An Education professor divides his class into groups of six to eight students. Each group is assigned a specific question or topic to discuss, selected from a list of questions prepared in advance. But, because students do not know beforehand which questions their group will be assigned, they must be prepared to discuss all of them.

The professor assigns one student in each group to be the discussion leader, another to be the group's summarizer, and a third to be the group's evaluator. Each group conducts its discussion in the manner it feels will be most effective. During the discussions, the faculty member moves back and forth among the groups, noting any issues he may want to bring up or clarify at the end of the class.

After the groups have discussed their respective topics, the class is called back together and each group summarizer presents the results of that group's discussion, highlighting key terms or other information felt to be important. Each group's evaluator then provides some observations on how well the group functioned and makes suggestions as to how it might have functioned more effectively. During the course of the term, each student serves at least once as a group discussion leader, a summarizer, and an evaluator.

8. **Assign your students specific leadership responsibilities.**

"I find this procedure very effective in getting my students to take responsibility for class discussions," notes an Architecture professor. Students select topics for which they will serve as discussion leaders. The number of student leaders per topic depends on the size of the class (usually from one to three students per topic). Each student, either alone or with other students, leads a discussion two or three times per semester.

"The leaders' task is to prepare a set of three to six discussion questions about the reading material. These discussion questions are handed out to the rest of the class the week before the topic is covered. If there is more than one leader for a topic, the leaders assume responsibility for facilitating the discussion."

9. **Use students' writing assignments as the basis for discussion.**

An Engineering professor identifies several key questions or issues which he gives to his students a week or two before they are to be discussed. His students prepare written responses of no more than one typewritten double-spaced page. As a result of writing their answers, students come to class well prepared to discuss the material. Their written responses are turned in at the beginning of the period and are subsequently graded, as is their participation in the discussion of the topic.

A History professor uses a similar strategy. In the first week of class he gives a few short writing assignments, each of which can be completed in one or two short paragraphs. "It's hard to provoke discussion at the beginning of the term by simply tossing out a broad query to the class," he says. "Assigning a specific topic to write about helps students prepare for the discussion. Later, when students are more comfortable with each other and with me, this kind of formal preparation is less necessary."

A professor of Business Administration uses the same approach throughout the term. Each week a "reaction" paper is due which requires his students to write one to three pages on a specific topic, typically responding to a controversial issue. The papers are graded and used as the basis for class discussion.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 10, 1986 form.

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Teaching Innovation and
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Teaching Improvement Packets

No. 11

INVITING STUDENTS TO SHARE THEIR KNOWLEDGE AND EXPERIENCES

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Call on students who might provide an interesting viewpoint.**

   "I call on students whom I think might have a different perspective or set of experiences relevant to a given topic or issue," says a professor in Political Science. "I try to take advantage of the probability that outdoor types have different experiences and attitudes about environmental issues, or that women and men students view prostitution and childcare differently."

   A Law professor follows much the same procedure. "Some of my students have been divorced which means they have had personal experiences related to a particular law," she says.

   Several teachers stress the fact that by getting your students to talk about their experiences, you can greatly increase the amount of knowledge all your students take away from the course.

2. **Introduce students to the good work done by their peers.**

   There are several techniques used by a faculty member in Business Administration to extend the ideas and the special knowledge of individual students to the class as a whole. These include:

   - passing out a list of research topics chosen by the class so that his students will know if others are writing papers of interest to them.
   - making available copies of the best papers and essay exams to others in the class.
   - providing time in section to have students read the papers or assignments of others.
   - requiring each student to write a critique of another student's paper as one of the written assignments.
   - incorporating into his lecture a brief talk by a student who has experience or who is doing a research paper on a relevant topic.

3. **Encourage your students to write papers related to their backgrounds.**

A professor of English encourages his students to make use of knowledge and skills developed in other courses in combination with those emphasized in his course. "I strongly encourage my students to write papers on interdisciplinary topics," he says. Examples include: a Botany student wrote a paper on "Shakespeare and Plants," an Anthropology major wrote on "Folk Tales in King Lear," and an Art major analyzed the connection between the paintings of Watteau and imagery in Pope's "Rape of the Lock".

"If you can get your students to realize that they each bring different kinds of talent and expertise to the course and encourage them to apply these, that goes a long way toward motivating them to do their best work.

4. **Encourage your students to make presentations in class.**

"Sometimes my students come up after class and pose an interesting question or make an insightful comment," says one social science professor. "Often I encourage those students to pursue the topic in more detail and then make a brief presentation to the class. When possible, I try to get several students with complementary experiences to work together on a project of this kind."

This teacher assists his students in preparing their presentation and then gives them 10 or 15 minutes of lecture time.

5. **Require your students in the first week of class to bring examples of work done in previous classes (term papers, blue books, designs, lab reports, etc.).**

One Architecture teacher who does this has his students bring slides of design projects executed in prerequisite courses and present them to the entire class. In this way his students show each other their work and ideas and get to know one another better.

These are all the ideas that we obtained in our interviews with Berkeley faculty. If you have additional ideas that could be included in this Teaching Idea Packet, please call Robert Wilson at 642-6392.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983.
These suggestions relate to Student Description of Teaching Item 11, 1986 form.

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Teaching Innovation and
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Teaching Improvement Packets

No. 12

KNOWING IF THE CLASS IS UNDERSTANDING YOU OR NOT

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. Assign "minute papers" at the end of some lectures.

The Physics professor who invented this process says, "Several times during the term - about once a week - I come to class a little early. I write two questions on the board:

1) What's the most significant thing you learned today?

2) What question is uppermost in your mind at the end of today's class session?

"Then, I make my presentation for 49 minutes. One minute before the end of the period, I say to the class, 'Take out a piece of paper. You have one minute to answer these two questions.'

"My students sign the papers and pass them to the center aisle. I pick them up on my way out of class. I give them to my reader to check off the names of those who turn them in.

"Now I read some of the papers. I find I can tell whether I am getting my points across. I can also tell what problems students are having. I clarify difficult points next time we meet.

"I can identify students in trouble early in the term. If a student gives me off-the-wall responses, I invite him/her to come see me. One of the common problems is that a student has the course prerequisites on paper, but not in his/her head.

"Furthermore the 'minute paper' process causes students to listen more actively. All the way along during the class session they are saying to themselves, 'Is this the most significant thing I'm going to learn today!'

"Toward the end of the hour they have to wonder, 'Well, what question <u>is</u> uppermost in my mind at the end of this session.'

"Students' writing improves. Responses I get in the last week of the term are more articulate, and longer than those at the beginning."

2. **Distribute index cards several times during the semester and ask students to give you feedback on the course.**

A professor of Education asks students to respond to two questions, one on the front and one on the back of the index cards. The two questions he uses are, "How's it going?" and, "Any suggestions?"

3. **Videotape a segment of your class.**

Several Berkeley professors have had their classes videotaped. One Zoology professor has had his lectures videotaped many times. "The first time was a shattering experience," he says, "but it is the most effective kind of feedback you can get. I have found videotape invaluable for getting rid of annoying mannerisms, for learning to vary the speed of my delivery and to put more expression and greater clarity into my explanations."

If you want to arrange to have your class videotaped call the Educational Television Office (2-2535). Guidelines for observing a videotape of your teaching are available from TIES (2-6392) or from the Television Office.

4. **Reserve the last 10 minutes of your class for questions.**

A faculty member in the humanities wanted to provide opportunity for student questions during his lectures, but he was concerned that the questions might monopolize class time and take them off the topic. "I decided to reserve the last ten minutes of class for student questions," he says. "I feel better knowing I will not be interrupted. My students feel better knowing they have an opportunity to clarify points they may not have understood."

5. **Give frequent quizzes.**

One excellent science teacher gives students practice quizzes (of 10 to 15 minutes duration) throughout the quarter. "I don't grade the quizzes," he explains, "but I do read them and review material with which a large number of students seem to have difficulty. I also seek out students who are having real problems understanding the material and spend more time with them in my office or in the departmental course center."

6. **Increase the amount of eye-contact you have with your students during your lectures.**

"I look carefully at my students' faces," says one History professor. "You can't teach a bored or confused class. If I see a glazed look which suggests that students are not following me, I interrupt my lecture and say, 'We may be going too fast...,' or 'This point doesn't seem to be clear to some of you...'.

Some faculty members prefer to direct their questions to the entire class; others find it effective to call on students by name, interrupting their lectures to say, "Jerry, you look like you had a question," or "Several of you looked puzzled. Sally, can you tell me what doesn't seem to be clear?"

7. **Call on your students to paraphrase or summarize what you have just said.**

"Asking your students if they understand gets you only so far," one History teacher explains. "Asking Ms. Jones to summarize the main things to remember about X, and then asking other students to help out if she is having difficulty is a far better check on your students' understanding."

Asking questions of specific students has other benefits too. For example, because your students know that they may be called upon, they listen more attentively for the main ideas and that in turn helps them to organize their notes better. Getting your students to summarize periodically also breaks the monotony of a 50-minute lecture.

8. **Attend or lead lab or discussion sections yourself.**

Several faculty report that they always lead one lab or discussion group themselves so that they have firsthand knowledge of how the course is going.

"My students vary considerably in their command of prerequisite subject matter in this course," one faculty member explains. "It's a tough course and the chief task is to find out as soon as possible who is going to have trouble and to give them help early on. I can't always depend on the TAs to let me know. Also the atmosphere in the biological sciences is so fiercely competitive, many of my students try to hide their weaknesses until it is too late for me to help them."

9. **Encourage your students to form small study groups and send representatives to see you about difficulties their groups are having.**

One humanities teacher who does this says, "Although I encourage my students to come see me about problems they are having with my course, freshmen are often loathe to do that. By encouraging them to form study groups, I am trying to help them get to know at least some of their fellow students and to take advantage of what they can learn from one another. Also, it seems to be easier for some students to come to me for assistance if they 'represent' a group, because the problems are then seen as common to many students not just the group's representative. Faculty members can be very intimidating for some freshmen, even those of us who try very hard not to be. Also, many of these students were at the top of their high school classes and it is difficult for them to adjust to the competition at Berkeley. While it is difficult for them to admit that they don't understand some-thing, there is a certain comfort in knowing that some of their fellow students are in the same boat and that by joining forces they can help one another."

10. **Schedule an individual appointment with each student.**

A Statistics professor felt that he was not being successful in generating class discussion. At the end of the third week, still unable to encourage class participation, he decided to pass around a sheet of paper with a list of 10-minute blocks of time when he would be available for individual appointments.

Each of his students was required to sign up for one of the 10 minute appointments. They were told that the chief purpose was for him to get to know his students better and to listen to any complaints or suggestions they might have.

"I found that this was a real ice-breaker," he explains. "Even though most of our discussions were mainly chit-chat, some of my students used the opportunity to indicate problems they were having in the course or to make suggestions about course improvements. Perhaps the chief benefit was that it gave me an opportunity to get to know my students. As a result, they seemed to feel more comfortable asking and answering questions in class.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 12, 1986 form.

7/86

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Teaching Innovation and
Evaluation Services (TIES)
U. C. Berkeley

Teaching Improvement Packets

No. 13

HAVING STUDENTS APPLY CONCEPTS TO DEMONSTRATE UNDERSTANDING

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Assign "thought problems" which are typical of the problems faced by professionals in the field.**

   A Forestry professor assigns weekly "thought problems" which are of the same type he includes on his two midterms and final examination. "These 'thought problems'," he explains, "serve two functions: to expose students to my kind of exam and to get them to really think through the material covered each week. They are not graded, but every Monday I go over them in class so that my students can see how well they are doing."

   He goes on to say, "I can best define 'thought problems' in terms of the type of questions professional foresters are asked, such as, 'What is killing that tree?'; not 'Name six factors which can kill trees."

2. **Use real problems and have your students solve them.**

   An Engineering professor presents his students with problems based on real cases. "For example," he says, "my students are told that a ball bearing failure has occurred in an airplane. They are asked to outline what steps they would take in determining the cause and correcting it.

   "They tell me what tests they would make and, using simulation techniques, I tell them what the results of those tests would be and ask what they would do next. This continues until my students have either solved the problem or are stumped. Then their results are compared with those from the actual case study.

   "The value of this approach is to give my students experience solving the type of practical problems they will encounter as professionals," he explains. "Also, because the problems are based on actual cases, it gives my students a chance to compare their own problem-solving skills with those of practicing engineers."

3. **Use case studies to give your students practice at answering practice questions.**

   A professor of Anthropology carefully prepares case study assignments to give her lower division students exposure to primary research techniques and strategies. Students are presented with a collection of photos, maps, and narrative information which depict a site as an archaeologist would see it. Students must answer a series of questions, e.g., "What changes in eating habits can you infer from the artifacts found at two different levels?"

4. **Have students solve problems at the board.**

   A faculty member who teaches quantitative methods calls on students to come up to the board to solve problems. Each student is permitted to bring a fellow student as a "coach" so that he or she is not put on the spot. At the beginning of the term the problems are based on homework assignments. Toward the end of the term, they are based on impromptu examples. This method increases student discussion and interaction and encourages your students to pay close attention in class.

5. **Use the Socratic method to lead students through the steps involved in applying a particular concept.**

   For example, taking a concept like "licensing" as a public policy tool, a Political Science teacher guides his students through the steps involved in creating a regulatory commission, e.g., to license prostitution. "What would such a commission look like?" he asks. "Who would want to serve on it? What problems would it encounter? I force my students to apply abstract concepts and principles from their readings to new situations," he explains.

   Later in the term, he has his students actually simulate the workings of a particular regulatory commission and engage in debates on the pros and cons of particular policy solutions.

6. **Have your undergraduate students carry out independent research projects.**

A Forestry professor who uses this approach believes that too many laboratory courses follow a "recipe" approach and thus do not really introduce students to science. "I want my students to get a feel for real scientific research," he explains. "Therefore, I require them to develop the questions, select the methods by which they are going to carry out their investigations, review the relevant research literature, and report their findings in both written and oral form."

The TIES office has a publication on strategies for promoting undergraduate research. If you are interested contact TIES (2-6392).

7. **Have your students do research and write reports for specific "real world" clients.**

Some teachers select or simulate a problem in their field and then have their students design a research project, gather the relevant data, and write up the results in a form appropriate for the "client."

Still other teachers find real clients for their students. For example, a teacher of natural resources has his students participate in all phases of the research, report writing, and oral presentation to client agencies for environmental impact studies in the Bay Area. Similarly, a social welfare teacher has her students help agencies define their needs and write grant proposals for submission to foundations and federal agencies.

An Education professor frequently has his students meet with top level University administrators to define current evaluation or information needs on the campus. Each of his students then designs and conducts a small-scale evaluation project on the campus and writes a report for the client-administrator in lieu of a standard term paper. He notes, "You get better results from your students if they feel there is a real audience for their ideas."

8. **Make assignments which give your students field experience.**

A Political Science professor always includes at least one experiential assignment in his courses. A recent example was to require his students to interview a Bay Area politician as well as his or her spouse, children, staff members, and several constituents in order to get a better understanding of the daily life of a politician and the issues and problems he or she faces.

"My students were then asked to tell their class about their experiences so that generalizations could be drawn. They compared their own conclusions with those presented by both the theoretical and the popular conceptions of politicians represented in their reading assignments."

"My students are so experience-poor and theory-rich," he explains, "that I find as many ways as possible to get them to use the Bay Area as a laboratory for enriching their understanding of course concepts and theories. My students are also so competitive, that I try to give them a few non-competitive assignments where each student has his or her own unique experience which can be pooled with those of others in the class in a way that enriches everyone's understanding."

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 13, 1986 form.

7/86

SHOWING INTEREST IN STUDENTS

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Arrive at class ten minutes early each day and talk with your students individually.**

   "I try to target a different section each day," a History professor says, "talking with my students about the course or more general topics, getting to know their names and something about them as individuals. It helps me to remember a name if I can connect it with a place, an interest, a personality trait. An easy example would be Miss Baker from Bakersfield."

   This teacher, like many others, believes that addressing students by name helps to dispel the excessive formality of a large lecture class and creates a more positive learning environment.

2. **Keep the hour following a class open to talk with your students.**

   Make a habit of staying after class to talk with your students. "The biggest turn-off for students is for a faculty member immediately to gather up his notes and his briefcase and virtually beat his students to the door after class," a professor of Public Health points out. "This suggests that he is too busy for students. I have developed a technique of loitering after class, very slowly erasing the boards and talking with my students as they leave. The result is that after the first few days of class, more and more of my students linger as well, and I get to know many of them in that way."

   If another class is scheduled in the room immediately following your class, then do as a Biochemistry teacher does and tell your students that you will stay in the hall for ten minutes following lecture to respond to students' short questions.

   Hold office hours immediately following class. The same Biochemistry teacher also schedules his office hours following the class meeting. "That way students who bring up more complicated questions right after class are invited to accompany me back to my office. I've found that my students are more likely to have questions or comments at the end of a class when the material is still fresh," he notes. "This strategy lets me address their concerns immediately."

3. Invite your students to lunch.

Even in large lecture classes, it is possible to make personal contact with many of your students. A Physiology professor for example, takes two of her students to lunch each week. Each week she randomly selects two names which are placed on the board at Monday's lecture. The two students are asked to see her after lecture and a mutually convenient time is set for lunch that week.

"In this way I get to know at least 30 of my students in the class fairly well," she notes. "Knowing these students helps my lecturing because I am better able to 'pitch' a lecture if I know the interests and abilities of students in my class It's also a lot easier to lecture to familiar faces."

A Business Administration faculty member uses a similar technique. "I set aside three luncheon dates during the semester and invite my students who would like to meet with me informally for lunch at the Faculty Club to sign up." Each term 15 to 20 of my students avail themselves of this opportunity.

4. Meet regularly with your students who do poorly on the midterm.

One professor of Forestry gives the first of two midterms early enough in the course to allow him to identify those students who may be having difficulty. After the first midterm, he asks each of his students who did not pass to talk with him about the exam results. In these meetings he tries to discover each individual student's problem. "I ask questions such as 'Did I misread anything you gave as an answer?' or 'What problems did you have in taking the exam?'"

He concludes each meeting by telling his students that he is certain that they can do better and striking a bargain with them. "Usually, I tell them that I'll forgive the first midterm and let their grade be determined solely on the second midterm and final," he says, "on condition that they agree to meet with me weekly to go over homework assignments and to get additional help.

"About nine or ten students take advantage of this help each term," he explains. "As a result of this technique, in the ten years I have been teaching I have not had to flunk a single student in a course. Giving students a second chance, I find, is a powerful motivator."

5. Schedule an individual appointment with each student.

A Statistics professor felt that he was not being successful in generating class discussion. At the end of the third week, still unable to encourage class participation, he decided to pass around a sheet of paper with a list of 10-minute blocks of time when he would be available for individual appointments.

Each of his students was required to sign up for one of the 10 minute appointments. They were told that the chief purpose was for him to get to know his students better and to listen to any complaints or suggestions they might have.

"I found that this was a real ice-breaker," he explains. "Even though most of our discussions were mainly chit-chat, some of my students used the opportunity to indicate problems they were having in the course or to make suggestions about course improvements. Perhaps the chief benefit was that it gave me an opportunity to get to know my students. As a result, they seemed to feel more comfortable asking and answering questions in class.

6. Require all your students who do below "C" work on assignments or quizzes to see you.

One teacher of Forestry does this in all his undergraduate courses. Another Forestry professor writes a note, "Please see me" to students who score below 70 on his weekly quizzes.

"It's important to find out why students score low," he explains. "If they are having difficulty understanding the material, I offer to help them. If it's a question of motivation or a student placing less priority on my class, that's OK too. It helps me as a teacher to know the reasons for the poor performance. Showing concern is also a powerful motivator for some students: they begin to do better."

A Zoology professor concurs. "I call students in who get less than 50% on the biweekly quizzes," he says. "In a way, I play parent with them; I 'sit on' them a little. I think I understand better now than when I began teaching the need some students have for external motivation."

7. Consciously use your students' names whenever possible.

"I call roll several times during the beginning of the term to connect faces and names as soon as possible," a professor of Forestry says. "Later, if a student looks familiar but I can't remember his or her name, I simply admit it and ask the student to tell me again. Then I make a point of using the name right away to help me remember it the next time." A professor of Entomology says, "In a class of 100, there are always three or four names that I don't seem to be able to learn. Nevertheless, my students greatly appreciate the effort."

Another strategy is to walk around the class while your students are working on a quiz or problem and try to match faces with names. A science teacher says that he circulates for 10 or 15 minutes and then goes back to his desk and tries to write everyone's name down. "This really reinforces my memory," he says.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 14, 1986 form.

Ideas in this Teaching Idea Packet were selected from other TIPs in this series.

7/86

Teaching Innovation and
Evaluation Services (TIES)
U. C. Berkeley

Teaching Improvement Packets

No. 15

GIVING PERSONAL HELP TO STUDENTS HAVING DIFFICULTY

These ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Meet regularly with your students who do poorly on the midterm.**

   One professor of Forestry gives the first of two midterms early enough in the course to allow him to identify those students who may be having difficulty. After the first midterm, he asks each of his students who did not pass to talk with him about the exam results. In these meetings he tries to discover each individual student's problem. "I ask questions such as 'Did I misread anything you gave as an answer?' or 'What problems did you have in taking the exam?'"

   He concludes each meeting by telling his students that he is certain that they can do better and striking a bargain with them. "Usually, I tell them that I'll forgive the first midterm and let their grade be determined solely on the second midterm and final," he says, "on condition that they agree to meet with me weekly to go over homework assignments and to get additional help.

   "About nine or ten students take advantage of this help each term," he explains. "As a result of this technique, in the ten years I have been teaching I have not had to flunk a single student in a course. Giving students a second chance, I find, is a powerful motivator."

2. **Recommend that your students who need substantial assistance use the tutorial services of the Student Learning Center.**

   "I make extensive use of the Student Learning Center," a History professor notes. "I have referred many of my students there for help. Although I make quite specific comments on my students' papers, the SLC people are much more experienced than I am at seeing the underlying problems that a student has and in giving much more extensive assistance. It's just not as easy for me to see a students' pattern of mistakes."

   A professor of English also recommends the Student Learning Center highly. "Their tutors are really quite good," he says, "in fact, many of my better students have been tutors at the Center."

3. **Schedule specific topics for your office hours.**

"I find it useful to identify in advance a specific topic for my office hours," says a Linguistics professor. "I encourage my students who are having difficulty in that area to come for help." Based on past experiences she knows which concepts and ideas cause problems and she schedules her office hours to provide further elaboration and discussion on these topics.

"This way if one of my students misses a class or doesn't fully understand the topic, he or she has another chance at the material during office hours. My TAs are also encouraged to attend these sessions so that they better understand areas of student difficulty."

Another professor uses one office hour a week in a similar fashion, although the specific topics are not necessarily ones covered by the course. "Sometimes they are enrichment topics; sometimes they are remedial, like how to do a term paper," he says.

As an added bonus, students and professor get to know one another in a small informal setting.

4. **Provide self-instructional materials or "modules" which relate to basic principles and skills needed to succeed in your course.**

A faculty member in Biochemistry had a graduate student develop computer-assisted instructional units for review by his students whose science and math backgrounds were weak. "I give a short diagnostic test at the beginning of the course to help identify students who need this kind of review in order to keep up with my course," he explains.

A Physics professor also gives his students a review module covering basic algebra during the first week of class. "Students who are unable to pass a quiz after reviewing this unit are not allowed to continue in my course," he says, "because there is no way they could succeed without understanding the fundamentals of algebra." Such students are advised to use the Student Learning Center or to take an Algebra review course before enrolling in introductory Physics.

5. **Hand out brief excerpts or abstracts of contextual material to fill in cultural gaps in your students' knowledge.**

One professor of Near Eastern studies distributes such handouts fairly often in a lower division survey course. "I don't expect my students to know a great deal about the geography, religions, and literature of the Near Eastern countries we are studying," he says. "However, more and more, I find that I cannot make many assumptions about what my students know about Western culture either."

"This poses some difficulty for me as well as for my students, because I believe one of the best ways to teach something 'foreign' is by analogy to something that is familiar. Yet, in order to do that, I find it is increasingly necessary to provide information on the so-called familiar Western examples as well." Among the contextual materials he distributes in excerpted or abstracted form are fables, fairy tales, nursery rhymes, biblical stories or quotations, and Greek mythology.

6. **Require all your students who do below "C" work on assignments or quizzes to see you.**

One teacher of Forestry does this in all his undergraduate courses. Another Forestry professor writes a note, "Please see me" to students who score below 70 on his weekly quizzes.

"It's important to find out why students score low," he explains. "If they are having difficulty understanding the material, I offer to help them. If it's a question of motivation or a student placing less priority on my class, that's OK too. It helps me as a teacher to know the reasons for the poor performance. Showing concern is also a powerful motivator for some students: they begin to do better."

A Zoology professor concurs. "I call students in who get less than 50% on the biweekly quizzes," he says. "In a way, I play parent with them; I 'sit on' them a little. I think I understand better now than when I began teaching the need some students have for external motivation."

7. **Give a diagnostic test at the beginning of the semester.**

One Biochemistry teacher frequently gives a diagnostic test covering knowledge and skills prerequisite to the course. The test, which is given in the first week, is not graded. "Its sole purpose is to help me identify those of my students who need extra help so I can begin working with them early in the course.

"Students need to recognize their weaknesses and begin to correct them if they are to succeed in my course. But they have to be given the means for correcting deficiencies. I meet with students whose preparation is inadequate and assign them special problem sets on a regular basis."

8. **Make special efforts to integrate your weaker students into the class through small group work.**

One foreign language teacher divides his students into small groups. "I pose a question to each group," he explains. "One student in each group gives the answer orally; a second student corrects the first student, if necessary; and the third student writes the answer on the board. Each student has a role, and these roles are rotated throughout the quarter.

"Initially I assign my weaker students to do the boardwork," he says, "although I am careful not to do this in an obvious way." This allows the weaker students to participate, but in a way which will reinforce their own learning without holding back the others. "Also I often ask a better student to help out if a weaker student is having difficulty responding. Then I have the second student repeat the question to the first student to give him another shot at it. Peer teaching can be extremely effective," he says, "especially when a class takes responsiblity for its weaker members. I find this approach superior to one-on-one tutoring during office hours."

Several other excellent teachers also form small peer teaching groups in discussion sections or labs. They integrate their weaker students into groups of average and above average ability. Some explicitly suggest ways in which their better students may help other students or ways in which students who are having difficulty may learn from others.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 15, 1986 form.

7/86

Teaching Innovation and
Evaluation Services (TIES)
U. C. Berkeley

Teaching Improvement Packets

No. 16

RELATING TO STUDENTS AS INDIVIDUALS

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Use index cards as a mnemonic device.**

   As soon as you have a list of students enrolled in your class, write each of their names on an index card. On the first day of class, call roll, laying the cards on your desk by seat and row to reflect where each of your students is sitting in class. Throughout the first few meetings of the class, refer to the index cards and use students' names whenever possible.

   A faculty member who uses this technique finds it especially effective to return to her office immediately after class and lay out the cards in the same order and review the names. "I set a goal for myself of learning 5 names each time the class meets. With a class of 30, I find I can learn everyone's name within the first two weeks without any difficulty."

2. **Invite your students to lunch.**

   Even in large lecture classes, it is possible to make personal contact with many of your students. A Physiology professor for example, takes two of her students to lunch each week. Each week she randomly selects two names which are placed on the board at Monday's lecture. The two students are asked to see her after lecture and a mutually convenient time is set for lunch that week.

   "In this way I get to know at least 30 of my students in the class fairly well," she notes. "Knowing these students helps my lecturing because I am better able to 'pitch' a lecture if I know the interests and abilities of students in my class it's also a lot easier to lecture to familiar faces."

   A Business Administration faculty member uses a similar technique. "I set aside three luncheon dates during the semester and invite my students who would like to meet with me informally for lunch at the Faculty Club to sign up." Each term 15 to 20 of my students avail themselves of this opportunity.

3. **Enter the class through the same door as your students.**

A faculty member in the biological sciences says that he always does this when teaching in a large lecture hall. "I enter from the back of the room with my students, pausing to chat with students on either side of the aisle before class begins," he says.

"You have to get into your students' skins to really teach well," he believes. "It helps to see the classroom from their vantage point and to get a sense of the class from their perspective. Not enough faculty members do this," he believes, "and among other things, it shows up in boardwork that can't be seen past the tenth row."

4. **Consciously use your students' names whenever possible.**

"I call roll several times during the beginning of the term to connect faces and names as soon as possible," a professor of Forestry says. "Later, if a student looks familiar but I can't remember his or her name, I simply admit it and ask the student to tell me again. Then I make a point of using the name right away to help me remember it the next time." A professor of Entomology says, "In a class of 100, there are always three or four names that I don't seem to be able to learn. Nevertheless, my students greatly appreciate the effort."

Another strategy is to walk around the class while your students are working on a quiz or problem and try to match faces with names. A science teacher says that he circulates for 10 or 15 minutes and then goes back to his desk and tries to write everyone's name down. "This really reinforces my memory," he says.

5. **Arrive at class ten minutes early each day and talk with your students individually.**

"I try to target a different section each day," a History professor says, "talking with my students about the course or more general topics, getting to know their names and something about them as individuals. It helps me to remember a name if I can connect it with a place, an interest, a personality trait. An easy example would be Miss Baker from Bakersfield."

This teacher, like many others, believes that addressing students by name helps to dispel the excessive formality of a large lecture class and creates a more positive learning environment.

6. **Have your students fill out a brief questionnaire about their backgrounds and interests.**

Typically, such questionnaires ask for information about students' major, prerequisite or related courses taken, job experiences, and career plans. Faculty members use this information to understand their students and to call on those whose experiences may give them a different perspective.

A faculty member in Political Science, for example, asks students to describe their most memorable experience that relates to the subject matter of the course. A faculty member who teaches an area course asks about students' travel experiences or knowledge of the peoples of the area through relations, friends, or through reading.

7. **Post your students' names prominently in a lab or seminar.**

A faculty member in the sciences has each of his students write his or her name on an index card and tape it above the assigned lab station. Using this technique, from the first day, he can begin calling his students by name. "This one simple thing," he says, "may be the most important thing I do to establish a good learning environment in which students feel free to approach me, to ask questions, and to get help if they need it."

An Engineering professor follows a similar routine in his seminar classes which tend to have 15-20 students. "I use 5x8 cards folded lengthwise," he says. "On each card I write a student's name as large as possible with a bold felt-tip pen. I set these cards around the table so that my students can quickly learn each other's names in the same way I do."

8. **Provide a relaxing informal atmosphere.**

"I bring coffee and donuts periodically to my seminar," says a professor in Engineering. "This helps relax my students and lends a congenial tone to the discussions."

"I find that this simple act seems to make the sessions more interactive. People tend to discuss issues over coffee and donuts more readily than in a fixed formal classroom setting."

9. **Pair students up to introduce themselves first to one another and then to the class.**

In seminar courses, most faculty members ask their students to introduce themselves briefly to the group. A professor of English has his students pair up for a few minutes to interview each other about their backgrounds, literary interests, and expectations from the course. He then asks members of each pair to introduce each other to the group as a whole.

"I think this approach helps students feel free to talk," he explains. It also helps set a pattern for discussion in which students are expected to listen to one another and to address their comments and questions as much toward one another as toward the instructor.

10. **Make a game of learning students' names.**

A professor of Forestry uses what he calls the "Name Game" with students to get everyone in the class acquainted. First, his students introduce themselves and tell the class something about their majors and their interests. Then he says, "Okay, let's try that again with just the names; only this time you will have to listen very carefully because I want you not only to introduce yourself but give the names of students who came before you."

The first student gets off easy, since she has only to introduce herself. The second person has to give his own name and the name of the student before him, and so on. "I put myself in last position," he explains, "and by that time I try to name all students in the room. I find that it is not only an effective way to learn their names, but the game-like quality of it breaks the ice and helps to create a sense of community."

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 16, 1986 form.

7/86

BEING ACCESSIBLE TO STUDENTS OUT OF CLASS

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. Keep the hour following a class open to talk with your students.

Make a habit of staying after class to talk with your students. "The biggest turn-off for students is for a faculty member immediately to gather up his notes and his briefcase and virtually beat his students to the door after class," a professor of Public Health points out. "This suggests that he is too busy for students. I have developed a technique of loitering after class, very slowly erasing the boards and talking with my students as they leave. The result is that after the first few days of class, more and more of my students linger as well, and I get to know many of them in that way."

If another class is scheduled in the room immediately following your class, then do as a Biochemistry teacher does and tell your students that you will stay in the hall for ten minutes following lecture to respond to students' short questions.

Hold office hours immediately following class. The same Biochemistry teacher also schedules his office hours following the class meeting. "That way students who bring up more complicated questions right after class are invited to accompany me back to my office. I've found that my students are more likely to have questions or comments at the end of a class when the material is still fresh," he notes. "This strategy lets me address their concerns immediately."

2. Go to class before it begins.

A Physics professor makes a point of going to his classes a half-hour early (if the room is vacant) to erase the board, check out the equipment and the demonstrations he will be using and write a brief review on the board (e.g., pertinent equations, key phrases, topic areas).

"This activity gets me in the teaching frame of mind and refreshes my students about the important points we covered the last time," he notes. "It also has the intended value of increasing the opportunities I have to talk informally with my students. Five or six students come early to the class each time to ask questions, share ideas, or just talk."

3. Give your home phone number to students in your classes.

Several faculty members encourage their students to call them at home if they have questions about an assignement. "Just not after 2:00 a.m.!" says an English professor. He finds that his students rarely abuse this invitation. "I usually get about six calls per term out of several hundred students since it is a lot less time-consuming to clarify an assignment the night before it's due than to negotiate a grade or an incomplete for a student who did the wrong assignment. I've found it's cost-effective to be a bit more cooperative and flexible at the front end."

A professor of Political Science agrees. "Even in my large classes (over 450), I rarely get more than a dozen calls, but, the fact that I give out my number lets my students know I am available if they need me."

4. Do some of your own work in your campus office.

Several professors do non-teaching work in their campus office with an open-door policy. "I tell my students that if the door is open they should feel free to come in and ask whatever questions they have," one teacher of dramatic art says. "On the other hand, if the door is closed, it means either that I am not in or I prefer not to be disturbed."

An Engineering professor follows the same policy. He tells his students that even outside formal office hours, "If you catch me in my office, I'm fair game. Being a UC Berkeley professor is my number one job, so I'm around the office a lot."

5. **Keep your office door open unless you really cannot be disturbed.**

"My students should have first priority on my time," one Engineering professor says. "I always keep my office door open when I am in and am willing to stop whatever I am doing if one of my students comes by. It's important not to appear standoffish, to act put-upon, bored, or too busy to spend time with your students out of class."

When he is working in the lab, he leaves a note on his office door inviting his students to drop by the lab if they want to talk. "Actually, I like to have students visit me in the lab," he says, "because there they can really see me at work, and can get some idea of what I do."

Finally, because he has discovered that some of his students never come to the office or lab, he tries to spend several hours a week in the department course center where students study, socialize, and eat lunch. There, he talks with them informally and gets to know them better.

These are all the ideas that we obtained in our interviews with Berkeley faculty. If you have additional ideas that could be included in this Teaching Idea Packet, please call Robert Wilson at 642-6392.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 17, 1986 form.

7/86

Teaching Innovation and
Evaluation Services (TIES)
U. C. Berkeley

Teaching Improvement Packets

No. 18

HAVING AN INTERESTING STYLE OF PRESENTATION

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Focus on five or six different students each day and give your lecture as if you were talking to them individually.**

   Many speech teachers encourage people to think of a lecture as an enlarged or public conversation. Several excellent lecturers told us that they lecture to a large class (50-200 students) in the same way they talk to a few students.

   "By focusing on a few students, I am more relaxed and informal. This helps me to concentrate more on the ideas I want to convey than the impression I may be making," one teacher said. "I think that, as a result, I speak with more expression and conviction."

2. **Exaggerate everything about your presentation in a large auditorium class.**

   A professor of Economics believes that physical exaggeration and a bit of hyperbole are keys to success in lecturing in a very large auditorium. "You have to remember that 800 students constitutes an audience, not a class in the normal sense," he points out.

   "In front of a very large audience, everything you would do in lecturing to a class of 30 or even 100 looks small, stiff, and formal. You have to exaggerate everything, make it all 'larger than life,' if you want to capture an audience.

   "In our very large introductory course, I stride the stage with long steps, I make sweeping gestures, I ask broad rhetorical questions and make ridiculous puns, I pound the lectern and raise and lower my voice, and I make frequent use of simple graphs projected on a movie-size screen.

   "In my smaller classes, of course, I do none of these. A teacher can get away with gross generalizations in a very large lecture setting; in fact, exaggerations can even enhance student learning in that environment. Students know the difference, and they appreciate a teacher's adaptation of pedagogical style to different settings."

3. Look for ways to relate the course material as a story.

"I always try to tell some kind of story," says a teacher in the biological sciences. "My primary belief about communication is that it doesn't matter what you say if you can't get them to listen."

In describing his preparation for a lecture for a large class he says, "Because I already know the material very well, most of the preparation goes on in my head for several days. Then, the night before I begin to concentrate on it very intensely; it's a little like the 'psyching yourself up' that actors or football players describe before a performance or a big game. Then I begin to outline the lecture, focusing on the major points and how they might be told as a story."

4. Vary the pace and type of instructional activities in a course.

One excellent teacher says that he conducts each class meeting differently "to keep my students off balance. Students always know what topic will be covered in a given session," he says, "but they don't always know how it will be handled."

An English teacher also believes that his wide variety of teaching strategies accounts for his high ratings on interesting style of presentation. "I read whatever I can find on teaching in my discipline," he says, "and I borrow shamelessly from other instructors when it comes to pedagogical strategies."

Some of the variations used by excellent teachers include: student panel discussions, guest speakers, slides, films, overhead transparencies, blackboard work with colored chalk, role-playing and simulations, and a wide variety of group discussion techniques.

5. Begin your lecture with a "joke of the week," especially in large early Monday morning classes.

One faculty member admits that his jokes are pretty bad, but finds that his students appreciate his efforts anyway. "I hate Mondays and I hate early mornings even more," he explains. "A joke related to the course content, to education, or to life in general tends to help get everyone awake," he says.

The source of his jokes? "One source is the students themselves," he says. "I encourage students to bring me jokes I can use. In that way my 'bad' jokes are their 'bad' jokes as well."

6. **Invite guest speakers to your course.**

An English professor sometimes invites professional actors to talk about their interpretation of a scene or a role from a play his students are studying. "It's very important to make clear to a guest what you expect of him or her in order to ensure that it is an educational experience for your students," he points out.

"I always take detailed notes during a guest lecture," says a professor in biological sciences. "In this way I am able to answer student questions about the material during later sessions and may learn something new myself!"

An Architecture professor prepares his guest speakers well in advance so that they know exactly what is expected of them. "Practicing architects are asked to submit working drawings, models, photos, and publications on one of their buildings so that my students can be well acquainted with their work beforehand," he says.

"Students are asked to submit a set of questions to a guest speaker beforehand about his/her work. Designated students are given responsibility to see that these questions are addressed to the speaker." He makes a point to confirm the time and place of the guest's presentation, provide a map of the campus, arrange for campus parking, and promptly send each speaker a thank-you letter.

7. **Focus your lectures around a common object, event, or phenomenon which exemplifies the major concepts of the course.**

A faculty member in the Biological Sciences calls this his "potato lecture." "Biology is an empirical discipline; it depends on observation and investigation. I pass out potatoes to all 700 students in the class and begin a Socratic dialogue about the kinds of things they can observe about their potato. I have to overcome their previous experiences," he explains. "Although potatoes are familiar objects to them, they don't have the foggiest idea what a potato is. I stress what you can get out of everyday experiences by asking the right questions. I poll them on their observations, help them ask questions and describe ways they could investigate answers."

An interactive exercise around a common phenomenon tends to "break the ice" between faculty and students even in a large lecture course.

"After the lecture, some students cook their potatoes and others plant them. Months later, I still get stopped by students who want to tell me how their potatoes are doing," he says.

8. **Begin class with an incident, example, or anecdote to get your students' attention.**

A faculty member in History says that he often begins by reading aloud a short passage from a primary source or a story to illustrate his major theme or point in the lecture. "For example, I start out by stating that the Wizard of Oz is a parable for progressivism and read passages from it to illustrate my major thesis. I then get my students to help identify the different characters and what they represent.

"I usually end with a quotation that pulls together what I have been trying to say," he says. "Also, whenever possible, I try to link the past with current events, to show how the topic is important for the present."

9. **"Open with gusto" and "Finish strong."**

Professor Otis Lancaster of the University of Pennsylvania points out the advantages of giving special thought to beginning and ending each lecture.

"The opening should secure students' attention and give them the desired mental set. Get off to a good start. Do something to command attention from the outset. Put punch into your opening.

"Have some form of attention-getter....a gadget or piece of hardware whose operation depends upon the principles of the day's lesson usually excites attention. Carefully planned questions or statements can also develop the curiosity necessary to get students' attention.

"Action is always an attention-getter. If you intend to use charts or models for demonstration, have these carried to the front of the class after students are assembled; or keep charts covered until class starts. This will usually whet students' curiosity and make them eager to see what is going to happen.

"The ending is as important as the beginning. Don't let a class session fade into nonexistence. Make an impressive ending. For example, end with: a question for the class to cogitate and answer before next meeting; a quotation conveying the essential theme; a summary; a miniature review (keep it brief); or what to do before the next class." (Lancaster, Otis E., Effective Teaching and Learning, N. Y.: Gordon and Breach, 1974, pp. 122-24.)

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 18, 1986 form.

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Teaching Innovation and
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U. C. Berkeley

Teaching Improvement Packets

No. 19

VARYING THE SPEED AND TONE OF YOUR VOICE

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Learn to vary the pitch or inflection of your voice.**

   If your students complain that you lecture in a monotone, you may want to try one of the following: taking speech lessons, joining an organization like Toastmasters, taking acting lessons, joining (or organizing) a poetry or drama reading group, or simply practicing reading aloud to yourself or members of your family. Each of these methods has been used effectively by one or more Berkely faculty.

   One faculty member combined speech lessons with Bible readings at his church with good effect. Another took an acting class on campus during the summer, and not only improved his vocal delivery in the classroom but had enjoyed himself as well.

   Several faculty members recommended joining a poetry-reading group. "Reading poetry aloud can be particularly helpful because poetry requires greater vocal inflection for its meaning to become clear," one said. Reading plays aloud with friends or family can also be an enjoyable means of practicing vocal variety.

2. **Wear a microphone and remember to "talk to the back row" if you have a tendency to speak too softly.**

   By remembering to talk to the back row, you will be more likely to adapt your voice to groups of different sizes. Note, however, that although you want to project your voice to the back row, your eye contact with students should vary over several sections of the room. If you look at the back row as well as talk to it, you will appear excessively distant and formal.

3. **Build deliberate and purposeful pauses into your lectures.**

   A Zoology professor stresses the importance of the pause as a rhetorical device. "When I want to emphasize a point, I always pause until the audience is absolutely silent (it makes my students uncomfortable). Then when I have their full attention, I proceed to make the point."

4. **Practice your lecture communication skills in front of a mirror.**

   This recommendation comes from a professor of Zoology who was a champion debater in college. "Even today, I frequently rehearse my classroom lectures or research presentations in front of the mirror," he says. "Of course, you want to do this in private. It makes you very self-conscious at first, but I find it an excellent way to practice communication skills."

5. **Make diagnostic and practice audiotapes.**

   Although the audio quality of most home tape recordings is not good enough to diagnose fine points of pitch, inflection, articulation, and pronunciation, it can be used effectively to note whether you speak too slowly or too rapidly, whether you vary your tone and inflection sufficiently to hold your students' attention and communicate meaning, and whether you articulate clearly and/or forcefully enough to be heard and understood.

   Auditotapes can also be used to check the organization of your lecture presentation and the clarity of your explanations. Repeated audiotaping will also allow you to monitor your improvement on any of these variables.

6. **Use your students to monitor your presentation.**

   If you want an in-class reminder of when you are speaking too softly, too rapidly, or without sufficient articulation to be heard and understood, ask one or more of your students, a TA, or colleague to sit in the last row and give you a pre-determined signal whenever your voice cannot be heard or your speed or delivery or articulation makes it difficult to understand what you are saying.

7. **Color-code your lecture notes with cues to "slow down," "pause and get attention," "demonstrate with gestures," or other stage directions.**

   One of several faculty members who does this says, "Because I have a tendency to speak too rapidly, I find these color-codes helpful as cues to slow down when introducing a new idea, explaining a concept, or summarizing major ideas and the relationships between them. This also frees me to speak at my own normal fast clip when making transitions or giving examples, he says.

8. Use the blackboard as a 'brake'.

One faculty member who uses the blackboard extensively during her lectures reports that she purposely does so to force herself to slow down. "I have a tendency to speak very rapidly," she says, "and because this course covers many basic concepts, it is imperative that I slow down in order to allow my students to absorb what I am saying and to take reasonable lecture notes.

"One of the best ways I have found to do this is to outline my lectures as I go along. I also write out all important concepts, keywords for definitions or important examples, and diagram various relationships at the time I am discussing them. I try to plan my boardwork ahead so that there will be enough space, and I use colored chalk to diffrentiate concepts and highlight relationships.

"I find that because it takes me much longer to write than to speak, writing on the blackboard is like an automatic 'brake'. Also, I get fewer student complaints about my lecture pace because the main concepts and processes are on the board, visually reinforcing what I am saying."

These are all the ideas that we obtained in our interviews with Berkeley faculty. If you have additional ideas that could be included in this Teaching Idea Packet, please call Robert Wilson at 642-6392.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 19, 1986 form.

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Teaching Innovation and
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U. C. Berkeley

Teaching Improvement Packets

No. 20

SHOWING INTEREST IN AND CONCERN FOR THE QUALITY OF YOUR TEACHING

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Distribute index cards several times during the semester and ask students to give you feedback on the course.**

   A professor of Education asks students to respond to two questions, one on the front and one on the back of the index cards. The two questions he uses are, "How's it going?" and, "Any suggestions?"

2. **Give a diagnostic test at the beginning of the semester.**

   One Biochemistry teacher frequently gives a diagnostic test covering knowledge and skills prerequisite to the course. The test, which is given in the first week, is not graded. "Its sole purpose is to help me identify those of my students who need extra help so I can begin working with them early in the course.

   "Students need to recognize their weaknesses and begin to correct them if they are to succeed in my course. But they have to be given the means for correcting deficiencies. I meet with students whose preparation is inadequate and assign them special problem sets on a regular basis."

3. **Use your students to monitor your presentation.**

   If you want an in-class reminder of when you are speaking too softly, too rapidly, or without sufficient articulation to be heard and understood, ask one or more of your students, a TA, or colleague to sit in the last row and give you a pre-determined signal whenever your voice cannot be heard or your speed or delivery or articulation makes it difficult to understand what you are saying.

4. **Empathize with the students' difficulties in learning the material for the first time.**

A faculty member in the sciences says that he noticed that he had taught the course better the first time than he did the second time. "When I asked myself why, I realized that in preparing the course for the first time, I really had to work hard to master certain parts of the material in order to explain it to my students. The next time, however, these concepts no longer seemed difficult to me. Unfortunately, I forgot that they would still be difficult for the students. Now I color-code all of my lecture notes, keying the parts that students are likely to find difficult and making a special effort to make those points very clear."

A Physics professor also tries to put himself in the students' shoes. "After I have finished writing up a set of lecture notes," he says, "I review them carefully, asking myself: 'What might my students find hard to follow in that line of reasoning?' 'What examples might make that more clear?' This has now become the most important part of my lecture preparation."

Several faculty members report making notes to themselves of explanations that worked well and those that didn't. They also keep records of the kinds of errors students most commonly make in assignments and exams as a reminder of what students find most difficult to understand.

5. **Videotape a segment of your class.**

Several Berkeley professors have had their classes videotaped. One Zoology professor has had his lectures videotaped many times. "The first time was a shattering experience," he says, "but it is the most effective kind of feedback you can get. I have found videotape invaluable for getting rid of annoying mannerisms, for learning to vary the speed of my delivery and to put more expression and greater clarity into my explanations."

If you want to arrange to have your class videotaped call the Educational Television Office (2-2535). Guidelines for observing a videotape of your teaching are available from TIES (2-6392) or from the Television Office.

6. **Attend or lead lab or discussion sections yourself.**

Several faculty report that they always lead one lab or discussion group themselves so that they have firsthand knowledge of how the course is going.

"My students vary considerably in their command of prerequisite subject matter in this course," one faculty member explains. "It's a tough course and the chief task is to find out as soon as possible who is going to have trouble and to give them help early on. I can't always depend on the TAs to let me know. Also the atmosphere in the biological sciences is so fiercely competitive, many of my students try to hide their weaknesses until it is too late for me to help them."

7. **Practice your lecture communication skills in front of a mirror.**

This recommendation comes from a professor of Zoology who was a champion debater in college. "Even today, I frequently rehearse my classroom lectures or research presentations in front of the mirror," he says. "Of course, you want to do this in private. It makes you very self-conscious at first, but I find it an excellent way to practice communication skills."

8. **Make diagnostic and practice audiotapes.**

Although the audio quality of most home tape recordings is not good enough to diagnose fine points of pitch, inflection, articulation, and pronunciation, it can be used effectively to note whether you speak too slowly or too rapidly, whether you vary your tone and inflection sufficiently to hold your students' attention and communicate meaning, and whether you articulate clearly and/or forcefully enough to be heard and understood.

Auditotapes can also be used to check the organization of your lecture presentation and the clarity of your explanations. Repeated audiotaping will also allow you to monitor your improvement on any of these variables.

9. Assign "minute papers" at the end of some lectures.

The Physics professor who invented this process says, "Several times during the term - about once a week - I come to class a little early. I write two questions on the board:

1) What's the most significant thing you learned today?

2) What question is uppermost in your mind at the end of today's class session?

"Then, I make my presentation for 49 minutes. One minute before the end of the period, I say to the class, 'Take out a piece of paper. You have one minute to answer these two questions.'

"My students sign the papers and pass them to the center aisle. I pick them up on my way out of class. I give them to my reader to check off the names of those who turn them in.

"Now I read some of the papers. I find I can tell whether I am getting my points across. I can also tell what problems students are having. I clarify difficult points next time we meet.

"I can identify students in trouble early in the term. If a student gives me off-the-wall responses, I invite him/her to come see me. One of the common problems is that a student has the course prerequisites on paper, but not in his/her head.

"Furthermore the 'minute paper' process causes students to listen more actively. All the way along during the class session they are saying to themselves, 'Is this the most significant thing I'm going to learn today!'

"Toward the end of the hour they have to wonder, 'Well, what question is uppermost in my mind at the end of this session.'

"Students' writing improves. Responses I get in the last week of the term are more articulate, and longer than those at the beginning."

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983.
These suggestions relate to Student Description of Teaching Item 20, 1986 form.

Ideas in this Teaching Idea Packet were selected from other TIPs in this series.

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Teaching Innovation and
Evaluation Services (TIES)
U. C. Berkeley

Teaching Improvement Packets

No. 21

MOTIVATING STUDENTS TO DO THEIR BEST WORK

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. Make personal contact with individual students.

"In motivating my students to do their best work, I have found no substitute for personal contact with individual students," says a Business Administration faculty member. "Such personal contact is a natural part of a small, year-long seminar, but I have to resort to short-cuts to establish a measure of contact with individual students in large classes." To increase opportunities for personal contact he employs a variety of techniques:

- a voluntary questionnaire on the personal and educational backgrounds of members of my class. "This survey has proved useful in identifying students with special expertise to draw on during discussions."

- a mandatory visit by each of his student to his office hours. "I try to schedule this around approval of their research project."

- a thoughtful evaluation of your students' written work. "I have come to realize that evaluating students' written work provides the most direct opportunity for one-to-one communication. I spend a great deal of time commenting on papers, emphasizing how to improve their performance."

2. Model your own high standards for your students.

"If you do a sloppy job, you can't expect your students to do a good one," one History professor explains. "I point out to my students that I put in several hours preparation out-side of class and I expect them to do the same. After all, I already know the material. If it takes me several hours to review it to do my best, certainly my students can't expect to do less and still do well in the course."

An Economics professor concurs, saying, "If I work hard preparing and am excited about the course, then my students are too."

3. **Orient new students to faculty expectations for student performance and the resources available to assist them with problems they may have.**

One humanities teacher does this every Fall in his introductory level course taken primarily by freshmen and transfer students. "Because most of the new students feel quite lost at the University," he explains, "I take time at the beginning of a course to explain how courses work at Berkeley and to relate a number of anecdotes that let them know that any feelings of strangeness they may be experiencing are also felt by others."

"I tell them where the major tutorial, counseling, and advising services are and invite them to come see me if they are having difficulties."

Note: The TIES office produced a Faculty Guide to Instructional Resources, the last section of which describes the various campus resources available to your students who need help with academic or personal problems. Contact TIES: 642-6392.

4. **Emphasize how to learn from one's mistakes.**

A Biochemistry professor, for example, points out that the date in student laboratory reports can easily be faked; therefore his main concern is that his students understand why their experimental results failed and not that they get the right results. "If my students can analyze and explain why their results failed," he says, "I give them full credit for their lab reports. I emphasize that everyone makes mistakes; what is important is to learn how to profit from them."

A professor of English says, "I try to set a tone in which my students can readily admit that something went wrong in their bibliographic search. The course focuses on mastering a methodology and a range of bibliographic skills. I encourage my students to tell other students about their mistakes and explore the reasons for them with the group rather than masking those mistakes.

5. **Individualize instruction as much as possible.**

A professor of Physics explains that he first gets to know his students as individuals, then he focuses on their weak points (excessive shyness, lack of confidence, aggressive over-confidence, etc.) "Then I begin to draw them out individually to help them overcome those weaknesses," he says.

"For example, I might challenge a smart-aleck student with a question he can't answer, and then help him find a way of researching or solving the problem. With a shy student, I might start out by asking him to walk back to the office with me to loan him a book I think will be of interest, or I might ask him to go to the library and look up something for me. Once he is in my office, I may ask him to work out a problem on the blackboard and discuss it with me orally, and then gradually convince him to make a presentation in front of my class.

"Most students are either afraid of faculty members or tend to think that we only like A+ students. In fact, some A+ students are a bore and some C students are very interesting and engaging people. More importantly, some C students are really A or B students, if only someone takes the time to work with them, to help them correct bad study habits or faulty problem-solving techniques and gain self-confidence."

6. **Hold an outside review session once every two weeks.**

An Ethnic Studies professor who teaches a large introductory course holds voluntary discussion sessions on a regular basis to review the material and answer his students' questions. The session is held in a smaller room immediately following his lecture when his students are most likely to have questions. There is no set agenda for the session. The teacher simply fields students' questions and stimulates discussion of important concepts and ideas. He has found that between 20 and 50 of his students attend each session (out of an enrollment of 350). The sessions, besides being worthwhile for his students, give the professor an opportunity to get to know his students and their concerns.

7. **Give a "mini-lecture" on how to write a paper or respond to an essay question.**

Several excellent teachers do this routinely in their courses. "I impress upon my students that History is a literate discipline," says one teacher. "I encourage them to respect their own research and ideas enough to organize them in some logical and coherent fashion before they start to write. I point out that I work hard at organizing and outlining my lectures, and I expect them to do the same for me."

A Zoology professor says that he gives his students a "sermonette" on the importance of good writing. "I give them a twenty-minute essay quiz bi-weekly, and take off a few points for incomplete sentences, poor grammar, etc. Spelling, however, I have to ignore," he concludes, "or no one would have any points left!"

The TIES office has available a guide to composition resources which describes ways of improving your students' writing skills. Contact TIES: 642-6392.

8. **Give a mini-lecture on how to read a book most efficiently.**

Mini-lectures of this kind are especially helpful in lower division courses and in courses where the readings are difficult classics or works not originally written for students. An English teacher does this in his upper division literature courses as well.

"I discovered several years ago," he says, "that most of my students really don't know how to read a book. It seems like such a simple thing to a faculty member. The sheer volume of our reading forces us to learn a lot of time-saving devices one way or another. Undergraduates, on the other hand, tend to approach a book in a linear fashion, sentence by sentence, paragraph by paragraph from beginning to end."

"Now, in many of my courses, I include a mini-lecture on how to read various kinds of books; how to use a table of contents, an index, how to skim the beginning and ends of chapters, how to identify the main points, how to take notes, and how to tell whether a book is worth reading or not."

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 21, 1986 form.

7/86

Teaching Innovation and
Evaluation Services (TIES)
U. C. Berkeley

Teaching Improvement Packets

No. 22

GIVING INTERESTING AND STIMULATING ASSIGNMENTS

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Give a brief early assignment that allows your students to build on knowledge and skills acquired in previous courses.**

   One professor of Architecture does this in his studio courses. "Beginning with a problem that my students can easily master increases their self-confidence and creates a relaxed, non-threatening atmosphere for the course," he explains. "My first assignment always calls for my students to use skills learned in prior courses and to apply them to an elementary design problem."

2. **Give your students at least one assignment which consists of several options.**

   One professor of English requires every student to write two essays on assigned topics. His third assignment, however, sets forth five or six options from which his students may choose the one which sounds interesting and most allows them to do their best.

   Examples of the options which he offers include: a piece of creative writing; a dramatic representation to be performed in front of the class (which can be a small group or team project); an original videotape to be shown to the class (which can also be a team effort); or a third essay (a "safe" option generally selected by his more conventional students). In addition, with his permission, students can create an option of their own if they wish.

   "More than five or six options tends to confuse some students; it becomes too difficult to decide," he believes. "Two few options, on the other hand, restricts unduly my more creative and daring students." Although optional assignments must be related to the subject matter of the course, he encourages his students to take an interdisciplinary approach and to link content and skills from other courses.

3. **Give your students the choice of substituting a paper for one of your midterms.**

A professor of Classics gives two midterms and one final exam. He has found it useful to give his students the option of writing a paper (from an approved list of topics) for either of the midterms.

"I haven't really noticed any pattern of who takes the midterm and who writes a paper," he comments. "Good and poor students do both. In general about 25% of the class chooses to write a paper." He finds that giving his students options increases their motivation and makes them more active learners.

4. **Create opportunities for role playing.**

An Engineering professor makes use of role playing to encourage his students to develop skills they will need in their careers. "I give my students copies of an Engineering report, for example. Then one half of the class is asked to assume the role of the authors of that report and prepare an oral presentation for the client or funding agency. The other half of the class is assigned to act as representatives of the client or funding agency and to prepare questions to be asked of the engineers.

"About a week later, during class time, I select certain students to actually enact these roles in front of the class. My students do not know ahead of time who will be called upon, so everyone has to be prepared. Those not called on join me in the role of the observer. When the students have enacted the meeting, the rest of us give a critique of each side's performance."

5. **Assign provocative or controversial topics for papers.**

"I find that the quality of the papers I get often depends on the quality of the assignment I give," says a professor of Business Administration. He tries to give provocative topics as paper assignments.

For example, in a recent assignment he asked his students to respond to the question, "If you were working in a company that illegally pollutes the environment what would you do and why?" Giving provocative assignments not only challenges his students and makes for more interesting reading but also diminishes the chance that the papers will be plagiarized.

6. **Use a structured process to help your students choose topics and groups.**

In one Public Health class, students work in small groups on a major project throughout the term. The professor has developed procedures to help his students choose topics and groups. First, all possible project ideas are listed on the board using a brainstorming technique. The question posed to students is "What topics or areas would you like to explore?"

Enough topics are generated so that each is taken on by a group of four to six students. The small groups meet around their selected topic of interest and students explore in detail the nature of their project. At the end of the first period, students indicate on an index card their name, address, phone number, group and whether their decision is firm. This list is typed and distributed at the next class meeting when needed changes are made.

This procedure gives students a chance to identify appropriate topics and explore in preliminary fashion how they might proceed. It gets students working on their term projects early and has the added benefit of providing each student with a list of everyone in the class and their project interests.

7. **Set up student panels.**

One faculty member in the social sciences organizes the term as a series of student-led discussions. "I believe my students can teach themselves a great deal; therefore I do not play an active role in the student-led discussions. My role is to serve as organizer and facilitator.

In the first week his students select the topic and the date of their presentation. Generally, there are three to four students per topic. Outside class, his students meet as groups with the faculty member to discuss how to organize their topics for presentation and discusssion. It is up to each student group to select whatever format they wish for their presentation.

"In the past, student groups have conducted a debate, performed a skit, or simply led a discussion about the topic," he says. "They learn a lot about the topic and they really get to know one another while preparing their presentations.

8. **Ask students to analyze an essay or journal article and to write a critique of it.**

One professor of English assigns the work of a literary critic and then asks his students to write an essay taking an adversary position. "If my assignments are provocative," he says, "I get better results. I stress the importance of their presenting a personal point of view. They should enjoy doing the paper; it should provide them with a personal learning experience."

A Psychology professor asks his students to write an evaluation or critique of a paper by a professional psychologist. "The process of analysis and evaluation captures what I am trying to do in the course," he explains.

9. **Give assignments which put your students in the role of another.**

A History professor reports that she used to give rather standard writing assignments, e. g., "compare author X and Y's views on A," where the two authors tended to be professional historians. "Most undergraduates, however, find the arguments of current historians somewhat arcane," she says.

"Therefore, most recently I have asked my students to read a collection of the 18th century speeches on why Louis XVI should be killed and assigned them the task of writing their own speech as if they had been living during the French Revolution.

"Undergraduates really are enthusiastic about this kind of assignment and do an incredibly good job. It helps them to identify with the issues of the time; in fact many of my students went to great lengths to research the authenticity of their own empathic interpretations. Next year, I intend to take this assignment a step further by dividing my students into small groups and having them actually deliver their speeches to the group."

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 22, 1986 form.

7/86

Teaching Innovation and
Evaluation Services (TIES)
U. C. Berkeley

Teaching Improvement Packets

No. 23

GIVING EXAMS THAT PERMIT STUDENTS TO SHOW UNDERSTANDING

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Permit your students to bring in one page of notes to use during an exam.**

   Several faculty members have found it useful to allow their students to take an 8 1/2 x 11 sheet of notes into midterm or final examinations. This decreases my students' anxiety about having to memorize formulas. Preparing these crib sheets helps my students focus their studying. Restricting my students to one page of notes forces them to synthesize the most important aspects of the course.

   "My exams are quasi-open book," explains a faculty member in Engineering. "My students prefer open-book, but I don't give such exams because my students spend too much time looking up things they already know - just to be sure. Letting them bring in condensed notes not only gives them a crutch against anxiety, it also provides an excellent form of review."

2. **Include an "extra credit" question on your midterms and final exams which asks your students to write an exam question rather than an exam answer.**

   One version of this approach found its way onto the Berkeley campus via a visiting Penn State professor and is used by several faculty members. The original extra credit question is worded:

   > "Almost inevitably instructors fail to ask you in an exam all those things for which you so carefully prepared. As it happens, writing good questions is almost as difficult as writing adequate answers. Thus, to give you your turn on the pitcher's mound, if you have the time and inclination, write an original exam question. You will receive between 0 and 10 points depending upon the quality of your question. JUST THE QUESTION PLEASE, DON'T SUPPLY THE ANSWER."

   This technique helps establish good rapport with your students, gives you additional information on their sense of what is important in the course, and becomes an excellent source of future exam, quiz, or discussion questions for the course.

3. **Hold review sessions before the midterm and the final exam.**

Many excellent teachers hold reviews in all of their undergraduate courses, but it is especially important in lower-division courses where many students are still unsure about the performance levels expected of them.

"Many freshmen and transfer students have not really developed good study skills," says one humanities teacher. "Furthermore, because many of them realize or suspect this, their anxiety level is especially high when they enter the University. I try to help by giving them study questions for reviewing the content of my course and by reviewing these questions in the last session of class."

4. **Balance the difficulty of test items.**

A professor of Business Administration distributes test items as follows: about 25% are reasonably easy questions that nearly everyone gets correct. About 50% of the questions require a little more sophistication but can be answered by students who have kept up with the course material. About 25% of the items are quite challenging and generally are answered correctly only by the top 5-10% of my class.

"A balanced test with easy, moderate, and difficult items gives my students an opportunity to show whether they have mastered the fundamentals of my course or have gone beyond the minimum," explains this faculty member. "I try to give my students a feeling of satisfaction at the end of a course by providing them with an ooportunity to express what they have learned, rather than frustrating them because what they have studied does not appear on the exam."

5. **Hand out study and review questions before the midterm and final.**

Several excellent teachers report that they always hand out study and review questions before exams in their undergraduate courses. A professor of Near Eastern Studies says, "This helps relieve test anxiety, especially in a lower division course where students are less sure what to expect."

"I organize my study questions so that it is apparent not only what is most important, but how the parts of the course fit together. I think this helps my students synthesize the material which is what most of my actual exam questions require them to do."

6. **Prepare test questions that are similar to those used in your quizzes, homework, or discussion.**

"I try to generate exam problems that are similar to my homework problems so there are no suprises," comments a Mathematics professor. "I also try to include problems everyone should be able to do (some very easy ones) as well as questions that require more thought and really make my students go beyond the material."

Questions on midterms and final exams should not take a form radically different from those which you use in quizzes, homework assignments, lecture or discussion.

Several faculty members stress the importance of showing exams questions to TAs before the tests are administered. "TAs are very helpful in identifying test questions which may be too difficult for my students. They often see things that I don't when I make up the exams," he says.

7. **Give two midterms, and after the first exam, distribute copies of five different answers to one of your essay questions.**

A Political Science professor who does this tells his students that one of the five answers received an "A," one a "B," response, etc. Finally, I explain what I am looking for in a response to my essay exams and why I assigned each sample response the grade I did."

"I am much more interested in helping students learn how to do well in the course than I am in grading them," he explains. "As a result of this discussion, student improvement on the second midterm is often remarkable. I am convinced that the value of spending a small amount of classtime this way far outweighs any loss of coverage of additional content."

8. Prepare your students for challenging test questions.

In counseling her students about her exams, a History professor tells them a week ahead of time that the best preparation they can make is to compare x with y. X and y may be two playwrights, two orators, and so on whose major works were a century apart.

By identifying x and y and informing her students about the comparative nature of her examination, she alerts her students to what to prepare for, what to get down "cold." She also lets students know that her exams are "open book" where they can bring in x and y and any notes they have made or anything else they think will be useful.

Although her actual midterm and final examination questions are not at all the standard "compare x's views with those of y's regarding x," students who are prepared to make such comparisons are able to do very well. The actual questions are more creative, e.g., "Suppose that the main character in Molier's play were to appear in Beaumarchais' The Marriage of Figaro. How would A (Beaumarchais' main character) react to B (Moliere's main character)?" or "If x and y (from the 17th or early 18th centruy) had met Rousseau, how would they react to his theories?"

Questions of this type not only require students to understand two historical periods and major changes which took place between them, but to use that knowledge creatively.

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 23, 1986 form.

7/86

Teaching Innovation and
Evaluation Services (TIES)
U. C. Berkeley

Teaching Improvement Packets
No. 24

KEEPING STUDENTS INFORMED OF THEIR PROGRESS

The following ideas are suggested and used by faculty members at the University of California, Berkeley.

1. **Give students frequent assignments and make extensive, constructive comments on them.**

   "Students need to know what they are doing well in addition to what they need to improve," says one professor of History. "I am always careful to praise their strengths and to be as constructive and helpful as possible in pointing out their weaknesses."

   "I make a point of writing extensively on my students' papers," says a professor of Architecture. "I make comments in the margins as I am reading and then append lists of strengths and suggestions for improvement."

   "I write many comments on my students' papers and essay exams," says a professor in Ethnic Studies. "In fact, I write just as much on the best papers as on the poorest. On failing papers I write something like, 'Insufficient--come see me Wednesday' or on a good paper I might write 'Read such and such over the weekend and come talk to me about it next Tuesday.' I am also careful to remark on any improvements or progress a student may have made from one writing assignment to another."

   The TIES office has guidelines for commenting on student papers. Contact TIES (2-6392).

2. **Discuss the answers to exams, quizzes, or homework assignments at the next class meeting.**

   One Engineering teacher says that even if he cannot return graded assignments or exams, he always discusses the answers at the next class meeting. "I want to correct any misunderstandings and reinforce their learning as soon as possible," he says. "Students are much more receptive to this right after completing an assignment.

3. **Include peer-editing of student assignments (papers, computer programs, or design projects) in your course.**

"In my upper division courses, I have my students submit two copies of each computer program they write," one faculty member explains. "One copy goes to me and the readers and the other copy is assigned to another student in the class to evaluate and edit."

He believes that learning to program is like learning to write short stories; you learn not only by doing it but by reading programs other people have written. He has his students read and analyze exemplary programs, much as they might read excellent short stories. He believes that peer-editing also gives his students yet another opportunity to demonstrate understanding.

A professor of Architecture uses the same strategy with student papers. He has students exchange papers to take home and edit. "The final paper is submitted along with a copy of the first draft with its edited corrections in red," he explains. "Each paper then receives two grades, one for the author and one for the editor."

In this way, students receive prompt informal feedback from a peer, followed by a grade and a formal critique by the faculty member. This technique helps students acquire good editing as well as good writing skills.

4. **Give your students frequent homework assignments and return them at the next class meeting.**

"When I schedule student assignments, I block out my own time or grade them immediately following class," one Engineering professor says. "This is important for two reasons. First, the quick turn around time ensures that my students are still thinking about the assignment. Thus any criticism or feedback is likely to have a stronger impact than if it were delayed a week or more. Second, prompt feedback indicates to my students the importance of what they are doing and my concern for their learning the material."

An English professor agrees. "The impact is enormous when you return assignments at the next class session. Students are still anxious to know how they have done. That's a tremendous advantage in maximizing the impact of feedback on their learning."

5. **Hand out answers to exams and quizzes as soon as your students turn in their work.**

One Chemistry professor prepares a handout of correct answers which he gives to students as they turn in their answer sheets and leave the room. "There is no point in making students wait several days or weeks to find out how they did," this professor explains. "They are most interested in the results at the time of the examination, and it is at the time of the examination that the greatest reinforcement of the learning can take place.

Note that this method gives students immediate feedback even though it may be a week or more before the assignments can be returned with comments or grades.

6. **Return a "perfect" exam to your students along with their own corrected exams.**

A professor of Business Administration likes to provide a great deal of feedback to his students after exams as a way of re-emphasizing the themes of the course.

"I generally spend about half the class period walking my students through a 'perfect' midterm that I distribute to them along with their own corrected exams. I try to explain the ways in which most of their responses differ from what I consider to be a perfect answer or solution. I also hope that it helps them to do better on the second exam."

7. **Give your students summary reports of their grades throughout the semester.**

A Forestry professor periodically gives his students a list of their grades to date on his quizzes, midterms, and homework assignments.

"I keep all that information on computer," he says. "Then two or three times a semester I print out scores for each student on individual computer cards and hand them out to my students in class. My students can then see at a glance how they are doing and what grades their scores are equivalent to."

Through this method, students have tangible records of their progress. With the increased use of personal computers on campus, this become feasible for an increasing number of faculty members.

8. **Have your students keep a logbook of their work.**

The logbook should not be graded on its esthetics or its organization. It is intended to be a work in progress, not a final document. Following is an excerpt from a faculty member's course syllabus explaining the procedures to be followed in keeping thex logbook.

This term you are being requested to maintain a "Logbook". "Your logbook should be organized along the following principles:

1) Include your notes and thoughts on all design problems, lectures, readings - or anything that bears on this course.

2) After each project is complete, include a photograph or sketch of it in the book.

3) After each review, comment on what was said about your project and indicate how you would modify your scheme if you were to continue to work on it.

4) At the end of the term, reread all the materials in the book, making new comments from your advanced perspective.

5) The logbook will be reviewed at mid-semester; and will be due on the last day of class."

Adapted from ABC's of Teaching with Excellence, B. G. Davis, L. Wood and R. Wilson Teaching Innovation and Evaluation Services, University of California, 1983. These suggestions relate to Student Description of Teaching Item 24, 1986 form.

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